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The Effects of Tax Policy on American Agriculture

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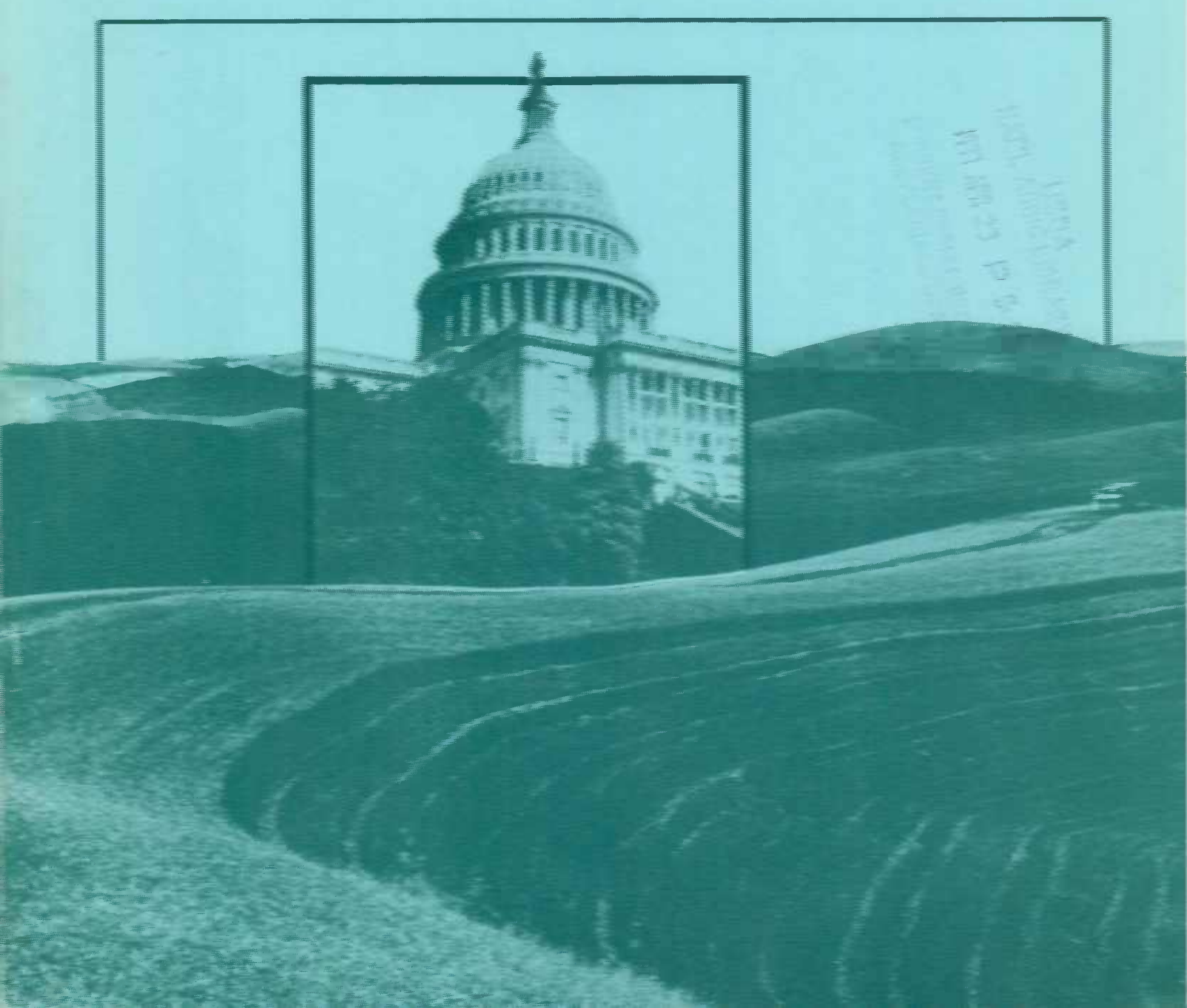

Economic Research Service

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The Effects of Tax Policy on American Agriculture.
By Charles Davenport, Michael D. Boehlje, and David B. H. Martin.
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Abstract
Federal tax policy appears to have a significant impact on American agriculture. Generally, tax policy has led to upward pressure on farmland prices, larger farm sizes, incentives for farm incorporation, altered management practices, and increased use of farmland as a tax shelter—by both farmers and nonfarmers.

Keywords: Tax shelter, land prices, growth of firm, cash accounting, special use valuation, deferred payment of estate taxes, tax preferences, management practices.

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Preface

This report is directed to a matter that now concerns many Americans, the Federal tax burden. It deals with the existing tax system and its effect on the development and growth of the agricultural sector and firms within it. We focus primarily on Federal income and estate taxes because they seem to have had the greatest impact on the investment and financial behavior of the people in agriculture. This report's purpose is to describe behavior rather than to deal with the relative merits or demerits of these taxes as compared with other taxes.

While much of the discussion deals with incentives and techniques that can reduce the burden of taxation, it should not be inferred from this report that most farmers spend their time preoccupied with developing tax avoidance schemes. Not all farmers have utilized these devices. Furthermore, similar kinds of incentives have been extended to other sectors of the economy. Because of these factors, it is uncertain whether the level of taxation in farming differs significantly from the level in many other business sectors. Moreover, without a comparative study across all sectors of the economy, it is not possible to evaluate the effects of tax policies on net flows of investment funds to or from agriculture. Such a comparative analysis is beyond the scope of this report.

The primary conclusion is that taxes and their incentives affect the allocation of resources. This conclusion is not surprising, especially since some tax provisions are designed partly for the purpose of reallocating resources (tax credits for capital investments, for example). This effect on allocation is described and discussed. However, just as other governmental regulatory policies frequently have unforeseen consequences, so may tax policy. This possibility and the kinds of research that might be undertaken to evaluate the effect of taxes on efficiency—as distinguished from behavior—are discussed.

This report is based on analysis of the Federal tax code as it existed prior to enactment of the Economic Recovery Tax Act of 1981. To the extent that the new act reduces the overall level of Federal taxes, it reduces incentives for taxpayer behavior which results in distortions in use of capital and other resources. Moreover, the reduction in Federal estate taxes via raising the exemption level, provides relief to those moderate-sized family farmers who found intergenerational transfers difficult because of fixed exemption levels and rapidly rising land values. A comprehensive examination of the potential effects of the new tax act on agriculture was not available to include in this report.

The research reported here was conducted by agricultural economists in several land-grant universities, and the results were synthesized by the authors into this summary report. While the conclusions do not necessarily reflect official views of the U.S. Department of Agriculture, the underlying research constitutes another step in the process of sorting out the complex, pervasive, and largely unforeseen side effects of regulatory policies.

This report is one of a series of reports planned to examine the impacts of Federal and other public regulatory policies on the economic performance of the food and fiber system. Other such reports recently published include:

- *Economic Effects of Terminating Federal Marketing Orders in California-Arizona Oranges*, TB-1664, November 1981.
- *Effectiveness of Federal Marketing Orders for Fruits and Vegetables*, AER-471, June 1981.
- *Economic and Federal Tax Factors Affecting the Choice of a Legal Farm Business Organization*, AER-468, June 1981.

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This report details the influence of the Federal income tax, estate tax, and other taxes on agriculture. It looks at the effects of tax policy on the income and wealth of the people in agriculture, the legal entities they use, the size and number of farms, the mobility of people and capital into and out of agriculture, the amount of farm labor, the tenure of operators, and the way in which resources are procured for use in agriculture.

While estimates about the strength of tax policy as a determinant of the course of agriculture are not available, the following generalizations about its effects can be made:

- Tax policy has exerted upward pressure on the price of farmland.
- The tax laws have encouraged expansion of individual farm firms.
- Tax laws appear to impose taxes on labor while allowing tax breaks for capital investments.
- Tax shelter aspects of farm tax laws have stimulated the production of tax-sheltered crops.
- Tax laws encourage the incorporation of some farm operations.
- To take advantage of the tax preferences extended to some farming operations, farmers frequently alter management practices.
- The tax shelter aspects of farm operations encourage the creation of tax-free financial reserves that may ease the passage through financial storms.

To lay the background for the implications of tax policy, this report gives an introduction to the Federal tax system. It also provides the research results that are the basis for the generalizations made on the effects of tax policy on agriculture. Suggestions are made for the direction of future research in the area of tax policy, such as the impact of the tax system on efficiency and resource allocation.

The Effects of Tax Policy on American Agriculture

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Introduction

This report discusses the effects of Federal tax policy on agriculture. Specific aspects of the agricultural sector that are considered include several characteristics of the people in agriculture—age, income, and wealth—and the ways that these people have organized themselves—corporations, partnerships, or sole proprietorships. This report also looks at farm numbers and size, and capital, labor, and farmownership.

Although American agriculture has been shaped by many forces, this report focuses on only one of those forces—Federal tax policy. Generally speaking, the aim of the tax system is to raise an amount of revenue that is consistent with fiscal policy. That goal should be accomplished in an equitable fashion, without seriously impeding our economic efficiency. Most tax literature discusses one of these aspects of the tax system. For example, some experts have argued that the farm tax preferences discussed in this report produce inequitable distributional results. Others argue that these same tax preferences have produced greater efficiency by encouraging investment in certain assets.

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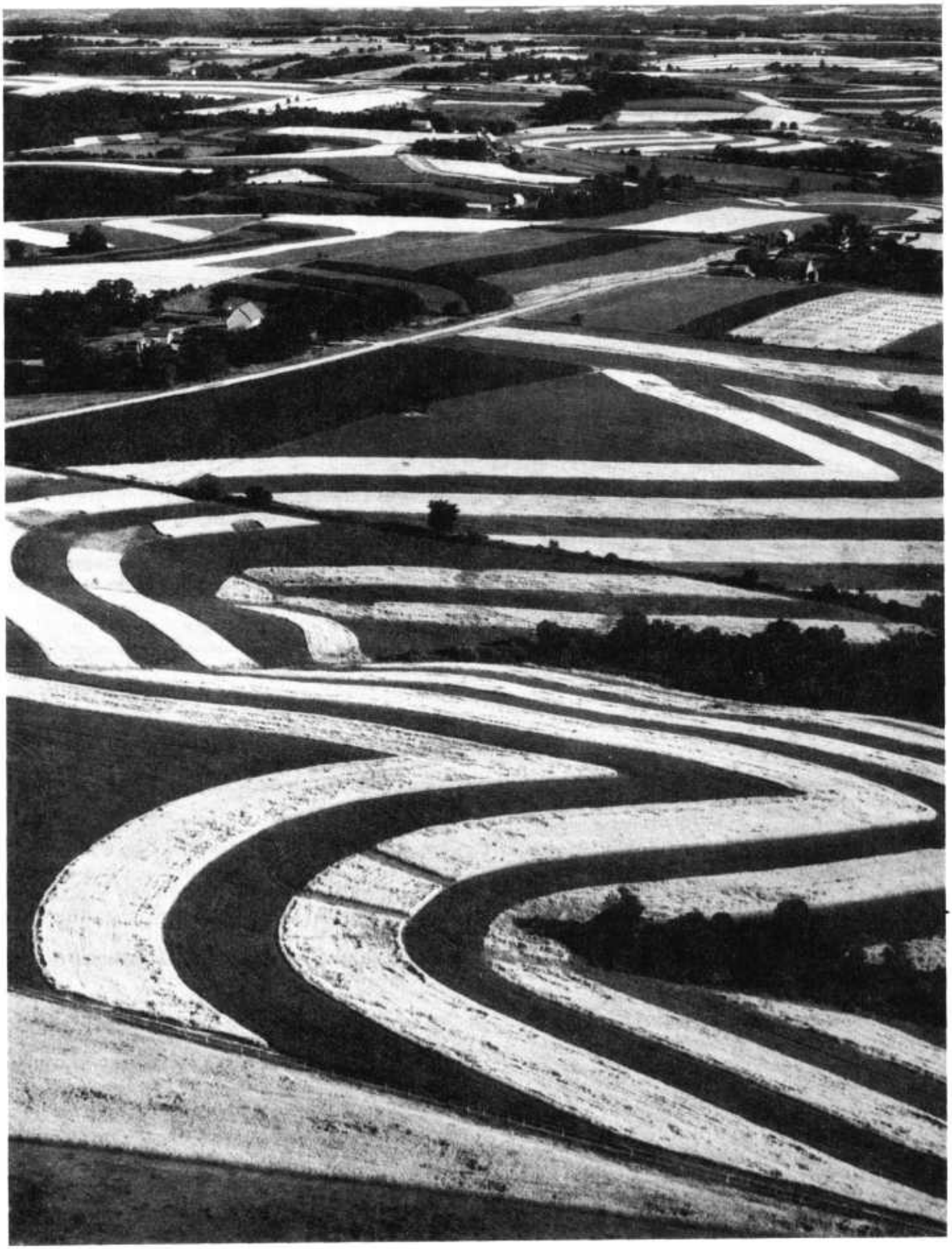
While these concerns about equity and efficiency obviously are important, they are not the focus of this report. The purpose of this report is to discuss how tax policies have contributed to changes in the agricultural sector. The influence of the tax system is described. There is no effort to judge whether that influence has been beneficial or detrimental. Readers are left to make their own judgments. Our purpose is to analyze and to ascertain the effect that tax laws have had and to report the results of that analysis.

To accomplish this purpose, it was necessary to do the following:

- Decide which tax provisions have had an impact on agriculture—income taxes, estate taxes, labor taxes, or others—and just what the influence of each has been, and
- Identify the characteristics affected by the tax provisions.

To lay the background for this discussion of tax policy, this report includes an introduction to the Federal tax system in chapter I. Chapter II details the conclusions reached. Chapter III summarizes the materials on which the conclusions are based. And finally, chapter IV suggests directions for future research.



Chapter I: Federal Tax Policy

Most observers believe that changes in the structure of agriculture in the last half century have been influenced by Federal tax policies. This chapter describes only as much of the tax system as is necessary to the discussion of the structural implications in chapter II.

The Federal Income Tax

The U.S. income tax system raised over 50 percent of Federal revenues in fiscal year 1981, with $286 billion being paid by individuals and another $62 billion by corporations.

The income tax originated modestly with the Revenue Act of 1913, which imposed a progressively graduated tax on the income of individuals. The rates began at 1 percent on $20,000 of income and reached a maximum of 7 percent at $500,000 of income. Revenue needs of World War I pushed the top rate to more than 70 percent, but exemptions and allowances were so generous that most of the population did not pay any income tax. In the forties, rates were increased, personal exemptions reduced, and wage-withholding instituted. With these steps, income tax payments became a familiar part of American life. Since then, rates have been substantially reduced, and exemptions and allowances have been increased from their wartime lows. The tax has not, however, receded as an economic factor. Income tax is now collected from the earnings of most working Americans. The income from farm operations and farm investments is no exception, and most farmers file tax returns.

However, the tax rules for farmers have differed in some respects from those applied to other taxpayers. To understand these rules, the theoretical underpinnings of our income tax must be reviewed.

Income Tax Theory

Three fundamental principles underlie the theoretical design of our income tax system.[1] These principles are: (1) that the tax will be imposed on net income, (2) that the tax will be imposed and collected on an annual basis, and (3) that the amount of tax paid by each taxpayer each year should constitute a fairly and consistently determined proportion of the taxpayer's net income as compared with other taxpayers. Although each of these principles sounds simple and desirable, the design of a system to conform to these principles is not an easy matter. That inherent complexity is compounded by the fact that the income tax system is seen not only as a means of raising annual revenue requirements for the operation of the Government, but also as a means of furthering other societal objectives of a political and economic character. As a consequence, the income tax deviates in practice from its three basic theoretical design principles. In some cases, these deviations were based on administrative convenience and were developed without consideration of their economic significance. In other cases, the deviations are purposeful. A number of these deviations have special significance for the manner in which the income tax applies to agriculture.

A Tax on Net Income. In order to reach *net* income, there must be rules for determining what is income—gross income—and what are offsets against gross income.[2] Cash receipts from the sale of goods or other assets are easy to measure.[3] Making offsets to gross receipts from the sale of goods and other assets to derive net income often

[1]The income tax applies both to individuals and to corporations. The principles discussed here are equally applicable to the taxing of corporate income although some of the rules implementing these principles for corporations differ in some ways from the implementing rules for individuals. The relevant differences are discussed later in this chapter.

[2]In this discussion, income from services is ignored because most agricultural income is derived from sales of products. Such products may, of course, have resulted largely from services, but the income is realized through sales.

[3]Some economic theorists would say that another type of income is increase in wealth due to the increase in value of an asset held without disposition. Our tax system has not treated such increase in wealth as income. To do so might, for many types of assets such as stamp collections and home furnishings, create serious administrative difficulties relating to the identification of assets and measurement of their change in value. For other types of assets, such as stocks and bonds, it might be relatively simple to treat their increase in value as income. However, administrative difficulties have not been regarded as a deterrent to designing systems of *ad valorem* property tax (as distinct from income tax) in which asset values are annually subjected to taxation which takes account of changes in such values.

presents complications, particularly in the case of goods requiring the input of many materials and processes. The expenses for producing such goods are commonly incurred and paid for in amounts and ways and over time periods that may make it difficult to determine precisely how to relate those expenses to receipts subsequently received from the sale of the goods. Rules must be established that appropriately allocate expenses as offsets to receipts to determine net income. Such rules must take into account changes in input costs and specify how to charge against receipts those inputs that are reflected in the final product, but are not identifiable as components of the final product.

The apportioning of expenses to related receipts becomes very complicated as a result of the other two fundamental income tax principles, namely, that net income be determined and taxed on an annual basis and that the amount of tax paid by each taxpayer from year to year should constitute a fairly and consistently determined proportion of the taxpayer's net income as compared with other taxpayers.

Progressive Tax Rates. Although an income tax system could tax all net income at the same rate, a single tax rate applied equally to all net income of all taxpayers is commonly regarded as unfair because of its failure to take account of relative differences among taxpayers in their ability to pay taxes. It would fall no more heavily on high-income taxpayers than on low-income taxpayers, although the former are proportionally better able to pay than the latter.

To achieve a fairer distribution of tax burden, a progressive rate structure has been adopted for imposing the income tax. The rationale for a progressive income tax is the theory of declining marginal utility. According to this theory, each higher dollar of net income has fewer needs or meritorious wants to satisfy than the previous dollar of net income. Thus, each higher dollar of net income has less utility to the earner and, therefore, is better able to bear tax.[4] Low net incomes are regarded as being devoted primarily to real needs or meritorious wants. As net incomes rise, they become more and more freely available for discretionary uses, including consumption, savings, and investment. And so the theory considers it fair for higher and higher incomes to be taxed at increasing rates.

Our progressive income tax is achieved by increasing or graduating the tax rates according to steps or brackets of taxable income. A tax rate for each of these income steps is fixed, with the rate for each step of higher income rising until the highest tax rate is reached. Because each step of higher income is taxed at a higher rate, the average rate of tax on all income increases as income increases. This graduation of rates achieves the desired result: higher incomes bear a higher tax, not only in amount of tax dollars (as would be true with a single tax rate applied to all income) but also as a proportion of tax dollars to income.

For example, for married taxpayers in 1981, the first step of taxable income is $2,100; it is subject to a tax rate of 14 percent and yields a tax of $294. The size of the next step of taxable income is also $2,100, but it is subject to a tax rate of 16 percent, and thus bears a tax of $336, or $42 more than the tax on the previous income step of the same amount. The total tax on these first two steps of taxable income is $630, or 15 percent of the total taxable income of $4,200. This percentage is the weighted average of the tax rates on the two steps of income, and it is usually referred to as the effective rate of tax. The rate applicable to a taxpayer's highest dollar of income is known as the marginal rate.

Given a progressively graduated rate structure, it is essential that net income (to which rates will be applied to calculate the tax to be paid) be fairly and consistently determined each year. Individual incomes tend to fluctuate from year to year and, therefore, so do the dollar amounts of tax due, assuming the overall rate structure remains the same. Rules are needed to determine annually net income consistently for all taxpayers, so that annual

[4]The theory of declining marginal utility accepts the principle of taxing only net income on the basis that until all expenses of earning income have been recovered, each dollar of receipts is equally devoted to the useful purpose of generating income. Only after these expenses are fully recovered does the utility of additional dollars of net income start to decline.

imposition and collection of income tax will operate equitably among taxpayers generally.[5]

Annual Taxation of Net Income. If all receipts and all offsets related to receipts, as experienced by all taxpayers, occurred within the precise limits of a year, no special rules would be needed to govern the determination of net income by year.[6] For example, if all taxpayers received x dollars of receipts in a year and, during the same year, paid out y dollars associated with production of those receipts, they would have *x-minus-y* dollars of net income. This net income, apart from any other features of the tax system or other tax-significant events, would be subject to tax at the rates applicable to *x-minus-y* dollars of taxable income. The applicable rates for each taxpayer would depend on the income tax brackets for the amount of his or her particular *x-minus-y* dollars of taxable income.

Seldom, especially for business taxpayers, do receipts (of whatever type of income) and offsetting expenses entirely occur in precise relation to each other within the limits of a year. As noted earlier, many types of expense are likely to produce receipts over several years. Furthermore, if receipts are taken in, or offsetting expenses are paid, in ways that distort the proper relationship between expenses and receipts over different years, net income will be distorted in those years. With a progressive tax-rate structure, distortions in net income change the amounts of tax that would otherwise be payable on income during those years. Specific rules for determining yearly net income prevent taxpayers from mismatching receipts and expenses and thus reducing their taxes. Where income arises from the sale of goods in the ordinary course of business, the use of accrual accounting is required in calculating net income. Under accrual accounting, all sales, whether the proceeds are collected or not, are treated as income. Expenses relating to the sold goods, whether paid or not, are taken as offsets against income. Inventories of unsold goods are recorded, and the costs associated with unsold goods do not enter into the computation of net income.

Disposition of Assets. As originally established, the income tax system treated the income from the disposition of all kinds of assets in a uniform fashion. Since 1921, however, income from the disposition of a type of asset known as a capital asset has been called capital gain and has been taxed at reduced rates.

The tax rate on income from the disposition of appreciated capital is reduced by allowing a portion of the increase in value to be excluded from taxable income. The balance of the gain is taxed under the regular schedule of graduated income tax rates. For individual taxpayers, the special treatment of capital gain income results in a tax rate of 40 percent or less of what it would be if the entire gain were taxed.

Broadly speaking, capital gain (or loss) is produced by the dispositions through sale or exchange of capital assets. The sale produces long-term gain (or loss) if the asset has been owned for more than 12 months. If not, it produces short-term gain (or loss). While capital gain technically includes both long- and short-term gains, only long-term gains receive the preferential treatment. There are also restrictions on the amount of capital losses that may offset other income (noncapital gain).

It is not always clear whether an asset is a capital asset to which the preferential capital gain treatment applies. Generally, assets held for investment purposes are treated as capital assets. On the other hand, assets held for sale are not capital assets. An

[5]The tax rates discussed here and several other features of the income tax were modified by the Economic Recovery Tax Act of 1981. Unless specifically noted, the text does not take account of such changes.

The tax rates applicable to corporate income are generally not believed to be progressive although the first $100,000 of corporate income is taxed in four steps at rates less than the rate for income above $100,000. In economic theory, corporations exist for the purpose of making profits and turning them over to shareholders. Because the theory of declining marginal utility has no application to them, all corporate income is equally able to bear tax, and a single, ungraduated rate is the norm for corporate income. In this view, the lower rates of tax on the first $100,000 of corporate income have the purpose of providing tax relief for small businesses.

[6]A year can be measured by the calendar, from January 1 through December 31, or in accordance with some other 12-month fiscal period. The tax system permits either form of measurement.

asset whose disposition sometimes produces long-term capital gain is property used in a business, generally business-related real estate, buildings, and equipment. Property is not "used in the business" if it is held for the purpose of being sold to customers, or if it has not been owned more than 12 months.[7] Gain from the sale of property used in the business is treated as long-term capital gain when the gains on the disposition of all items of such property for the year exceed the losses on all such items of property for the year.

The special treatment for capital gains holds to the principle that mere change in asset value is not treated as income for tax purposes. So long as a capital asset is kept in the form in which its increased value accrued, the income tax system ignores the increase. Only when a capital asset is converted from one form of property into another (that is, sold for cash or exchanged for another asset) is its increase or decrease in value recognized for income tax purposes. Increases and decreases in asset value acquire income significance when they are, in tax jargon, realized as gains and losses; that is, when their amounts are precisely fixed by the occurrence of an identifiable event, usually a disposition of the asset. Although disposition entails a realization of increase or decrease in asset value which may have accrued at a different time, the tax system treats the asset-disposing event as if it produced the gain or loss at the time the event occurred. In short, the income tax system recognizes changes in wealth due to changes in asset valuation only when they are marked by disposition of the asset. A taxpayer who has freedom in choosing when to make dispositions of assets thus has considerable freedom to arrange both the timing and the amount of income or loss for tax purposes.

Gain or loss on the disposition of an asset is measured by comparing the selling price with the price at acquisition. The latter is known in tax jargon as the basis of the asset sold. If the selling price is more than the basis, there is a gain; if it is less, there is a loss. For taxpayers who inherit an asset, the basis for computing gain or loss in a subsequent disposition is the value of the asset when the ancestor died. Even so, the disposition at death from the decedent to the heir is not treated as giving rise to gain or loss for purposes of the decedent's income tax liability in the year of death. Hence, changes in value that occurred but were not realized while the asset was held by the decedent are exempted when the decedent dies, and the asset passes into the hands of the heir with a new tax basis.

[7]Cattle and horses must be held more than 2 years.

Farm Tax Rules

The income tax system contains three features that apply specifically to farm taxpayers.

Cash Accounting. Income produced by the sale of goods in the ordinary course of business and the expenses related to this income are, for tax purposes, generally required to be reported at the same time. This result is achieved by the use of accrual accounting and the associated requirement that inventories of unsold goods be kept so that costs related to them are not deducted until the goods are sold. This technique is known as the "taking of an inventory," and it can be done only where the unsold goods can be counted and where a value can be given to each item counted.

In the early days of the income tax when few farmers earned enough to be subject to the tax, the Internal Revenue Service recognized the administrative inconvenience farmers would face if their unsold products had to be counted and valued. As a consequence, rules were established that allowed farmers to use cash accounting rather than accrual accounting. There has been little change in these rules over the years.[8]

Under cash accounting, income from the sale of goods is taxed in the year it is received in cash. Expenses are deducted from such income in the year they are paid. Inventories of unsold goods at year's end are ignored, and the costs related to such unsold goods are taken as deductions when the costs are paid rather than when the income is realized. Under cash accounting, there will be proper matching of sales income and the expenses of producing that income only in instances when expenses are paid and all the resulting products are

[8]Some farm corporations are not allowed to use cash accounting. The number subject to this restriction is likely small, and the denial would seem to have little effect.

sold for cash *within the same year.* In other instances there will be mismatching: the cash received in one year may have resulted from the prior year's production, and the expenses paid in one year may relate to the next year's production. Mismatching of income and expenses is significant. Mismatching produces distortions in taxable income; in any particular year it is either too high or too low. Since under a progressive tax the percentage of income paid in tax varies with the level of income, these income distortions produce distortions in the amount of tax that is paid.

Deducting Capital Expenditures. Business expenditures that are made to acquire or to develop assets that will contribute to the production or sale of goods over a long period of time are known as capital expenditures. Examples of such assets are equipment, buildings, roads, and other capital goods and installations. Because such assets will contribute to the production of income over many years, it is appropriate to apportion capital expenditures as offsets to income over the entire period during which they can reasonably be regarded as contributing to the production of income, rather than deducting them in full from income in the year they are incurred. This apportionment is known as depreciation. When an asset is depreciated, only a portion of its cost is offset against income each year. Depreciation helps to achieve an appropriate annual matching of expenses to incomes.

While the cost of many assets acquired by farmers are subject to the rules governing capital expenditures, costs associated with some farm assets are not. Instead, expenditures made for the development of certain farm assets may be deducted in the year they are incurred or paid. This sort of deduction leads to a mismatching of expenses and income. Examples include: certain costs associated with caring for orchards and vineyards prior to their producing crops, costs of raising livestock to maturity, certain soil and water conservation expenses (up to 25 percent of taxable income from farming), costs of maintaining and repairing structures built for conservation or erosion prevention purposes, costs of leveling and conditioning land, costs of clearing land (up to the lesser of $5,000 or 25 percent of taxable income from farming), and expenditures for fertilizer, lime, or other materials for enriching land.

Capital Gain from Sale of Farm Business Assets. As noted in the discussion of capital gain, property used in the business is not a capital asset, but gains from sales of such property frequently are treated as capital gains (but losses are not treated as capital losses) with a resulting lower income tax.

A substantial part of the receipts generated by some farms is derived from livestock of various kinds which can be regarded as being either inventory (producing ordinary income) or property used in business (producing capital gains). Livestock, such as cows, horses, and pigs, can be raised and held for sale or can be raised and held for use in the business to produce more livestock.[9] When livestock in the second category is sold, the income is treated as capital gain. But under appropriate circumstances, any livestock might appear to be in the second category. In order to prevent all livestock sales income from being treated as capital gain, the tax system establishes certain minimum required holding periods, which, together with evidence that the livestock was held to produce more livestock, must be met in order to qualify the livestock as capital assets rather than inventory. The effect of these required holding periods is that farmers can arrange to have a large proportion of receipts from the sale of livestock treated as capital gain rather than as ordinary income.

Effects of Special Features. Each of these three features of the income tax system results in some special tax-saving benefit for farm taxpayers. The most generous benefits result when, as a consequence of the combined effects of these features, a taxpayer's farm investment is managed so as to have all farm costs deductible as an offset against ordinary income while permitting all farm income to be taxed as long-term capital gain. Also, the higher the tax bracket of the taxpayer, the greater the benefits. Because of this, the higher bracket taxpayer can break even in farming at price levels that would not allow taxpayers in lower brackets to break even (table 1).

[9]Livestock held for draft, dairy, and sporting purposes are subject to the same rules and ambiguities as breeding livestock.

Table 1—Examples of break-even points by tax bracket

Item	Income tax bracket		
	20 percent	50 percent	70 percent
	Dollars		
Expenses	1,000	1,000	1,000
Tax benefit from deducting expenses	200	500	700
Unrecovered costs remaining after deduction	800	500	300
Amount that must be realized on sale of asset to recoup unrecovered cost and pay tax on income produced by the sale[1]	870	625	417

[1]These break-even points are computed by dividing the unrecovered costs remaining after deduction by the percent of sales proceeds remaining after sales proceeds have been reduced by the capital gains tax on them.

Some farmers have learned to use these special features for their benefit. Tax experts have designed arrangements to confer the status of farmer on investors who might not generally be regarded as farmers, so that they can take advantage of the tax benefits provided by these rules. Agency agreements, partnerships, and syndications allow the distribution of farm assets to a wide group of taxpayers. These arrangements are founded on the principle that tax benefits can be bought and sold. In the last 10 to 12 years, however, efforts have been made to preserve these benefits for real farmers while excluding nonfarm investors.

In 1969, the "excess deductions account" was enacted to convert some capital gains to ordinary income where it was believed that the accounting rules produced tax losses that were not economic losses. That approach was abandoned in 1976, and rules were enacted requiring syndicates to capitalize certain expenses and limit losses to the amount at risk. Some corporations were required to forego cash accounting as well as capitalize some expenses. These new rules make the farm income tax law tremendously complex. Nevertheless, few observers believe that the benefits of the special farm tax features have been confined to the true farmers. Other observers believe that, even if benefits were so confined, farmers vary so much in economic characteristics that some of them would still benefit more than others.

Revenue Losses and Distribution. The taxable farm income reported on tax returns filed by individuals for 1976 was $5 billion. That same year, the U.S. Department of Agriculture (USDA) estimated net farm income to have been $18.7 billion. This difference between taxable farm income and estimated economic farm income was not unusual; the same phenomenon has been reported consistently for years. While some farm income is earned by corporations and partnerships and thus would not be reported by individuals for tax purposes but would be within the estimate by USDA, the two measures of income have not been satisfactorily reconciled. It is not unreasonable, however, to believe that some part of this difference is due to the tax accounting rules allowed to farmers.

Because these rules exist, the Treasury Department collects less revenue than it might otherwise. The latest budget estimated the following revenue losses due to these special farm tax rules:[10]

Fiscal year	Expensing of outlays	Capital gains
	Million dollars	
1980	430	385
1981	475	405
1982	545	425

Source: Congressional Budget Office, *Tax Expenditures: Current Issues and Five Year Budget Projections for Fiscal Years 1982-1986*, Washington, D.C., 1981.

[10]The estimates are for individuals only. Estimates for corporations in the same years were $75, $80, and $85 million for expensing of outlays and $20, $25, and $25 million for capital gains.

The distribution of these revenue losses from individuals by income level has been estimated for calendar year 1977 as follows:

Income level	Expensing of outlays	Capital gains
	Percent	
$0-10,000	5.3	1.5
$10,000-20,000	18.1	7.0
$20,000-30,000	17.1	8.2
$30,000-50,000	24.8	15.4
$50,000 and over	34.7	67.9

Source: Senate Committee on the Budget, *Tax Expenditures: Relationships to Spending Programs, Background Material on Individual Provisions*, Washington, D.C., 1978.

Since nominal income levels have increased since 1977, it seems likely that the distribution of these revenue losses has shifted somewhat to higher income levels.

The Estate Tax

Like the income tax, the estate tax is a progressive tax; it is imposed upon and calculated as a percentage of the estate of a decedent, that is, the wealth owned or controlled by an individual at death.[11] Because of the graduated rate structure of the estate tax, the percentage of a decedent's estate which must be paid in estate tax increases as the size of the taxable estate increases. As with the income tax, the tax base, in this case the value of the taxable estate, is divided into steps. Each higher step of estate value bears a higher tax rate. The maximum rate of 70 percent is reached at the $5 million level of estate value.[12]

The taxable estate is the gross estate reduced by certain allowable deductions. The gross estate consists of:

- Property owned outright by the decedent at death;
- Gifts of property within 3 years of death for which gift tax returns were due, increased by the amount of gift tax paid on them;
- Property transferred before death to another person with the decedent retaining some specified controls;
- Certain annuities payable to a survivor;
- The appropriate share of tenancies in common and joint tenancies; and
- Proceeds of insurance on decedent's life if he or she had any ownership interest in the policy, or if they are paid to the estate.

Property over which the decedent had certain powers may also be included in the gross estate if these powers might fairly be said to be, or to have at one time been, nearly tantamount to ownership.[13]

[11]Since 1976, most gifts made by a decedent during his or her lifetime have been treated as a part of the wealth on which the estate tax is levied. The estate tax on this amount is reduced by the amount of the gift tax paid on the gifts so included in the estate tax base. The Economic Recovery Tax Act of 1981 changed many aspects of both the estate and gift taxes. Unless specifically noted, these changes are not taken into account in this report.

[12]Complementing the estate tax is a tax on gifts. It is imposed at the same rate and with many of the same deductions as apply to the estate tax. The gift tax is paid either in the year of the gift or the following year, and gifts of farm property bear tax at the full value of the property. The major purpose of the gift tax is to prevent avoidance of the estate tax through the making of lifetime transfers. The provisions discussed in the text for special valuation of real estate and extended payments of tax do not apply to the gift tax. The rates mentioned in the text will be reduced under the Economic Recovery Tax Act of 1981.

[13]Property not included in the decedent's gross estate but from which the decedent benefited by, for example, having a life income interest may, under some circumstances, be subjected to the so-called generation skipping tax. While technically speaking, the generation skipping tax is not a part of the estate tax but rather is a separate tax, it is, in general terms, imposed as if property subject to the generation skipping tax were a part of the gross estate. This tax is not further differentiated in this report.

The value of the gross estate is determined at the time of the decedent's death or, at the executor's option, 6 months after death. It is reduced by: the decedent's liabilities; funeral expenses; expenses of administering the estate; the value of property passing to qualified charities; subject to some limitations, the value of property that passes to the decedent's spouse (the marital deduction); and amounts that qualify for the so-called orphan's deduction. These deductions are subtracted from the value of the gross estate to derive a taxable estate value.

A tentative tax on the taxable estate value, as well as the value of all taxable gifts made by the decedent after 1976, is computed at rates beginning at 18 percent on the first $10,000 and reaching 70 percent at $5 million. This tentative tax is reduced by gift taxes paid on the gifts made after 1976. The balance remaining after this reduction is then reduced by the unified credit. For 1981 and subsequent years, the unified credit is $47,000. A credit of this size offsets the tax on the first $175,625 of taxable values and thus exempts from taxation (either the gift or the estate tax) the first $175,625 of the decedent's property transferred to beneficiaries, how ever it is transferred.

Deferred Payment of Estate Taxes

Generally, the estate tax is payable 9 months after death. There are provisions that allow extension of the time for payment by as much as 10 years. Other provisions mandate that estate taxes attributable to a qualifying small business or to a qualifying farm be extended and paid in installments over a period ranging from 2 to 10 years but beginning 5 years after death. Interest on taxes levied on the first $1 million of value in such estates (that is, taxes of as much as $345,800) runs at 4 percent, and interest on the balance of such installments runs at a rate applicable to other tax deficiencies, now 12 percent.

Use-Value Assessment

In response to the claims of farm groups that the market value of farmland was greater than its value for producing agricultural products, the 1976 Tax Reform Act allowed some estate taxpayers to value farmland at its use value rather than at its market value for estate tax purposes. While there are two alternative techniques, the valuation method most commonly used is to divide the average annual gross cash rent less property taxes for comparable land by the average effective interest rate for Federal land bank loans. Because the value of farmland established in this way is usually lower than its market value, the estate tax is also lower than if market value were used. This technique may not, however, reduce the value of the estate by more than $500,000. Although the exact amount of tax reduction will depend on the size of the estate and its composition, some observers have estimated that use valuation can reduce farmland values from 30 to 70 percent.

Effects of Farm Estate Tax Preferences

Consider the case of a farmer with a $1 million estate consisting entirely of real estate.[14] If the special use valuation were not available, the estate tax would be $298,000. If, however, the executor values the land under the provisions for special-use valuation, the value of the estate could be reduced by $500,000. The tax on the lower estate value after this reduction would be about $109,000. Special-use valuation thus would produce a savings of nearly $190,000.

If the estate also qualified for the deferred payment of taxes, the executor could choose to pay even this reduced estate tax in 10 annual installments beginning 5 years later than the regular payment date. Interest would accrue at a 4-percent rate. Since the market rate of interest would quite likely be above 4 percent, this low interest rate represents an additional savings to the heirs. Indeed, when funds to pay the estate tax liability can be borrowed at, say 7 percent interest, payment of the $109,000 estate tax liability bearing interest at 4 percent but payable over this 14-year period is equivalent to the paying of a debt of only $58,000 rather than $109,000. When market interest rates are higher than 7 percent, the debt equivalent is even lower.

These provisions provide an incentive for individuals to minimize their Federal estate tax by buying business and farm assets, particularly farmland.

[14]The marital deduction is not taken into account in this example.

The Congress passed restrictions to prevent speculators from taking advantage of these farm preferences. In order to qualify for the use-value assessment, farm property must have been in farm use for 5 of the 8 years preceding the owner's death. The owner (or a member of the family) must have participated materially in the farm operation for the same period, the property must pass to a statutorily qualified heir, and the value of the farm must make up at least 50 percent of the adjusted value of the gross estate. Furthermore, the tax savings from use valuation must be surrendered if the property is transferred to nonfamily members or if use of the property is changed from farm use in the first 10 years following death; only part of these benefits must be given up if the transfer or change occurs within 5 subsequent years.

Other Tax System Features

While there is a consensus that the income and estate tax provisions are the major tax factors particularly affecting agriculture, other features of the tax system also have some impact. However, these other rules are also applied to other sectors of the economy.

Taxes on Labor and Incentives for Capital Equipment

Accelerated depreciation, the investment tax credit, taxes for unemployment compensation, social security (FICA) taxes, and workers' compensation all may have an impact on the structure of the farm sector because they may affect the mix of capital equipment and labor in agriculture. The investment tax credit and accelerated depreciation appear to encourage the use of capital equipment by offering an income tax savings for purchases of capital equipment. The tax incentive of accelerated depreciation increases with the size of the taxpayer's income due to the graduated income tax. The other items—taxes for unemployment compensation, FICA taxes, and workers' compensation—appear to increase the cost of labor by assigning to the farmer some of the costs that laborers formerly had to bear. The farmer may, however, be able to shift these costs to the laborer by paying lower wages. While the resulting incidence (that is, the factors or persons who are, finally, affected) of these taxes is unknown, these features appear to encourage the use of capital equipment and to discourage the use of labor.

The Corporate Income Tax

The income tax is levied on corporations as well as individuals, and most of the rules concerning the computation of net income are the same for corporations as for individuals. There are three areas where the tax treatment accorded to corporations may be sufficiently different from that accorded to individuals that some farmers are encouraged to incorporate.

One difference involves the corporate income tax rates. The tax rate schedule for corporations is much different from the rates for individuals. The individual rates are progressive, and they begin at 14 percent and rise to 70 percent in 15 steps. Corporate rates are divided into five steps beginning at 17 percent and reaching the top corporate rate of 46 percent at $100,000 of income.[15] In the corporate income tax structure, the brackets are much wider than they are for the individual income tax; and for taxable incomes over $12,000, the tax rates for corporations are generally lower than the rates for individuals with the same amount of income. Because corporate tax rates are lower, profits of a corporation that are not paid out as dividends can be accumulated at lower tax cost than if the profits had been earned by individuals.[16] If dividends are paid, however, the recipient shareholder will be required to pay a tax on the dividend. The total of the corporate income tax and the tax on dividends will exceed the tax that an individual would have paid on the same amount of business profits earned by, and taxed to, the individual. If, however, divi-

[15]These lower rates for the first $100,000 of income do not, in the view of most theoreticians, produce a progressive tax for corporations. Both individual and corporate tax rates were modified by the Economic Recovery Tax Act of 1981. The text does not reflect these changes.

[16]Capital gains and losses of corporations are also taxed differently from gains and losses realized by individuals. The principal difference lies in the treatment of long-term capital gains. For individuals, only 40 percent of the gain is taxed, but the taxable portion is subject to the full graduated rates. For corporations, such gains are either taxed as any other income subject to regular rates or if a lower tax is produced by a 28-percent tax on the gain, this lower tax is paid.

dends are not paid and if earnings are accumulated in the corporation, the corporation's value should increase at least by the amount of income so accumulated. Increases in the value of the corporation's share produced by such accumulated earnings can sometimes be realized through sale of the shares. Where such sales are made, the corporate tax on income and the capital gains tax on the sale of corporate stock frequently will be less than the tax that would have been paid on the corporation's income if earned directly by the shareholders. The overall tax burden thus can sometimes be reduced by putting the business into a corporation.

This tax burden can be further reduced in those cases where it is possible to avoid the capital gains tax on the sale of the corporate shares. This can be done when the shares are held until death, transmitted at death, and then sold by the survivors. The stock will have a basis for computing capital gain equal to its value at the decedent's death. The survivors then are likely to have very little capital gains tax to pay, and the value represented by earnings that were taxed at the lower corporate rates is transferred to the survivors through the sale of stock. Frequently the sale is to the corporation itself, and thus the funds distributed to survivors are the very dollars earned by the corporation.

There are some costs, including some tax costs, that are higher for corporations. The social security tax on an employee's salary is higher than the self-employment tax. In some cases, what had been profits for sole proprietors before incorporation will be wages paid to an employee-shareholder and, therefore, subject perhaps to unemployment taxes and even workers' compensation contributions. Even so, under the present tax structure, the total tax cost on corporate income will frequently be less than the tax cost that an individual would pay if the income were earned by the individual. This is an encouragement to incorporate some farming operations.

A second tax incentive for farm businesses to incorporate flows from the estate and gift tax. Under the law, an individual may transfer up to $3,000 ($10,000 under the Economic Recovery Tax Act of 1981) a year to any other individual free of gift tax. A married couple may transfer $6,000 ($20,000 under the 1981 tax act). Thus, if a couple has two children, each year they may make gifts of $12,000 ($40,000 under the 1981 tax act) free of tax. Several years of this practice could lead to the transfer of an entire business or farm, or a substantial portion of one, free of tax. Farm businesses, however, do not lend themselves to piecemeal transfers because physical division of the farm is rarely feasible. By incorporating and then transferring shares of stock in the corporation each year, transfers of small portions may be achieved without physically dividing the farm.

A third incentive to incorporate involves fringe benefits. The cost of many of these benefits can be deducted by the corporation, but their value need not be included in the employees' gross income, even if they are shareholders. In contrast, if these benefits were purchased by sole proprietors, perhaps none, or at least a much smaller proportion, of their cost would be deductible. A corporation that employs its shareholders can provide more of these fringe benefits to its owner-operators at a lower after-tax cost than a noncorporate business can. For example, self-employed individuals and partners in a partnership are limited to annual contributions of $7,500 ($15,000 under the 1981 tax act) or 15 percent of their income, whichever is less, in tax-sheltered Keogh retirement plans. In contrast, corporations may establish much more generous plans and receive deductions for contributions to them. Other fringe benefits include health insurance, limited amounts of group life insurance, meals and lodging on business premises, and vacation facilities.

Farm Investments as Tax Shelters

Farm investments receive tax preferences under both the income tax rules and the estate tax rules. If carefully managed, these investments will produce lower income and estate tax liabilities than those produced by an investment giving the same economic rewards but not having any tax preferences. The preference exists in the income tax because many capital costs may be deducted as incurred, capital gain treatment is conferred on assets developed through deductible costs, and cash accounting may be used. In the estate tax, assets may be valued and taxed at less than their full value, and the payment of the tax may be postponed at interest rates below the market rates. This section describes the tax shelter aspect of farm

investments and then describes some of the economic effects that are produced in a tax-sheltered environment.

The Tax Shelter

The generation of net income is a continuum of events. On the income side, the decision is made to plant crops; assets and inputs are purchased; the assets are either subjected to some process that changes their values, or they are simply held (assets simply held may change in value); products are sold and the buyer becomes obligated to pay; and cash is received. Similarly, on the deduction side, there is a continuum of events: labor is hired, equipment is purchased, fertilizer is applied, liabilities to pay for materials and labor arise, payment for them is made, and items are consumed at various points in the income earning process.

Recognition of income and expenses for tax purposes might have been required at any one or more of these several points. As discussed previously, the income tax system generally has, however, recognized[17] income only when it is realized through the disposition of property. Because the tax base is annual net income, recognized gross income must be offset each year by deductible expenses related properly to the income recognized. Under this general rule, expenses are thus deducted only as and when their related income is recognized, and only annual net income is subjected to tax. Exceptions to this general rule have developed. Under exceptions applicable to farm income and expenses, the point for recognizing income has been moved from the moment of realization to the moment that the price is received in cash. For deductions, the moment of recognition has been moved from the time that related income is recognized to the moment that the deduction is paid.

Two aspects of these deviations are important for our purposes. First, the timing of payment or the timing of receipt in many commercial transactions are simply matters of negotiation with the other party. They can be planned to produce the desired tax result with little change in the underlying economic considerations. Taxpayers thus have considerable freedom to choose when to recognize income or expenses so long as the other party to the transaction is willing.

Second, these rule changes sever the logical cord binding the recognition of income and the simultaneous recognition of its related expenses. Recognition of each is triggered by different events. When these items are not reported at the same time, they do not offset each other. Instead, when the expenses are reported for tax purposes, they will be deducted from other, unrelated income and will produce a tax savings on that income. This tax savings is, in effect, an asset. The size of this asset depends on the amount of the deduction and on the tax rate that would otherwise have applied to the offset income. This asset will have the most value when it is reduced to possession as soon as possible. In contrast, the reporting of income produces a tax liability. The size of the liability depends on the amount of income and on the tax rate applied to the income. This liability will be the least burdensome when its payment is delayed. Thus, the goal for farm deductions is to claim them early and against income bearing the highest rate of tax. With farm income, the goal is to delay reporting and, where possible, to report it in a way that will subject it to the lowest possible tax rate.[18]

[17]"Recognition" and "recognized" are tax jargon meaning "to take into account in the tax system."

[18]With a progressive income tax structure, the tax rates for a particular taxpayer may vary from year to year as the income level varies, and the desire for early deduction can conflict with the desire to offset expenses against the highest bracket income. For example, a deduction taken at the earliest possible time could fall into a year with relatively low tax rates and provide a smaller tax benefit than if it were deducted in a later year. If, after taking into account opportunities lost because of a delay in claiming the deduction, the tax benefit produced by postponed deduction is greater than the benefit from immediate deduction, the delayed deduction will be chosen. If not, the immediate deduction will be arranged. Similarly, on the income side, postponing the recognition of income could push income into a year when tax rates are higher than they would be if the income were recognized immediately. If so, the taxpayer will consider what opportunities are lost through immediate recognition of income and payment of the tax and choose the timing of income accordingly. By these techniques, future assets and liabilities are reduced to their present discounted values for comparison with the tax assets and liabilities that arise from immediate deduction or inclusion in income. This comparison of present and future expected assets and liabilities is a complex matter. Not nearly all of the steps are detailed here.

Economic Effects of Tax Shelters

Economists consider investments governed by tax rules that permit the creation of tax assets and tax liabilities to be tax-favored investments or tax shelters. In a tax-favored sector of the economy, allowable expenses offer the possibility of creating tax assets with present discounted values that are larger than the present discounted costs of the tax liabilities on the income.[19] The difference between the size of the tax asset and the size of the tax liability is a return from the tax system that will augment the commercial or economic returns from the investment.[20]

If all other things are equal, the higher bracket taxpayer is always in a position to create, through early deduction, a larger tax asset than the lower bracket taxpayer can. And, the subsequent tax liability that arises when the income is reported will also be greater for the higher bracket taxpayer, but the difference in the discounted present values of the tax system asset and the tax liability usually will be greater too. This advantage for high-bracket taxpayers is increased when, as occurs with long-term capital gains, only a part of the income is subjected to tax.

In general, then, investors in some tax-sheltered industries have the opportunity to create, from the tax system itself, tax assets that are larger than the later tax liabilities created on the income from the investment. Farming is such a tax-sheltered industry; but only one of several.

[19]This discussion assumes that the investment does not produce economic losses.

[20]Where the size of tax assets produced by an investment is greater than the cost of the tax liabilities on it, the tax system functions as a kind of a welfare system. In effect, the taxpayer has a tax benefit that can appropriately be called a negative tax because even in the face of economic gains, the taxpayer pays less tax than would have been paid if the investment had not been made. The Treasury has, in effect, paid the taxpayer for having undertaken this investment. This negative tax results only where there are other sources of income that would, without the shelter, be taxed. In some cases, the tax asset will not be larger than the tax liability. Theorists have been known to argue whether these situations, where the negative effect is not produced, are in fact tax shelters. This report assumes that they are. The more extreme case where the tax asset exceeds the tax liability is discussed here to demonstrate the central concept more fully. Also, as a matter of fact, many farm investments present this more extreme case.

Returns on Investment in Tax Shelters.

Commercial returns in a tax-favored industry are enhanced by the tax benefit. If initially two investments offer the same before-tax rate of return but one of the investments is tax-favored and the other is not, the total rate of return from the tax-favored investment will be greater for those who can obtain the return from the tax system. To such persons, the tax-favored industry is more attractive than an alternative investment that is not tax-favored but is similar in all other respects.

This inequality in returns will not exist for long if funds can be shifted between the two investments. Investment funds will be withdrawn from the alternative investment and invested in the tax-favored industry. As a consequence, commercial rates of return in the tax-favored investments will fall, and rates of return in the alternative investment will rise. This switching of funds from relatively less to relatively more tax-favored investments will stop when the total rates of return in the two sectors are equal once again after taking into account both the benefits that result from the tax system and those that result from the economic activity in each industry.

Returning to the comparison between a tax-favored industry and a similar, nontax-favored industry, the commercial rates of return in the tax-favored industry fall for two reasons. First, if the supply of inputs is unlimited, new inputs will be placed into production, and output will rise. At some point these greater quantities of product lead to a lower market price for the product, and this lower price will produce a lower rate of return. Second, if the supply of an input such as capital or land, is in some way limited, its price will rise because there is a greater number of investment dollars bidding for the fixed amount of inputs. The higher prices for these inputs will cause the rate of return from them to decline.

If carried to completion and if the highest bracket taxpayers have sufficient funds, they would eventually own all investments in the tax-favored industry. This condition develops because the highest bracket taxpayers would increase their investments in the tax-favored industry and drive down the total rate of return (consisting of a commercial

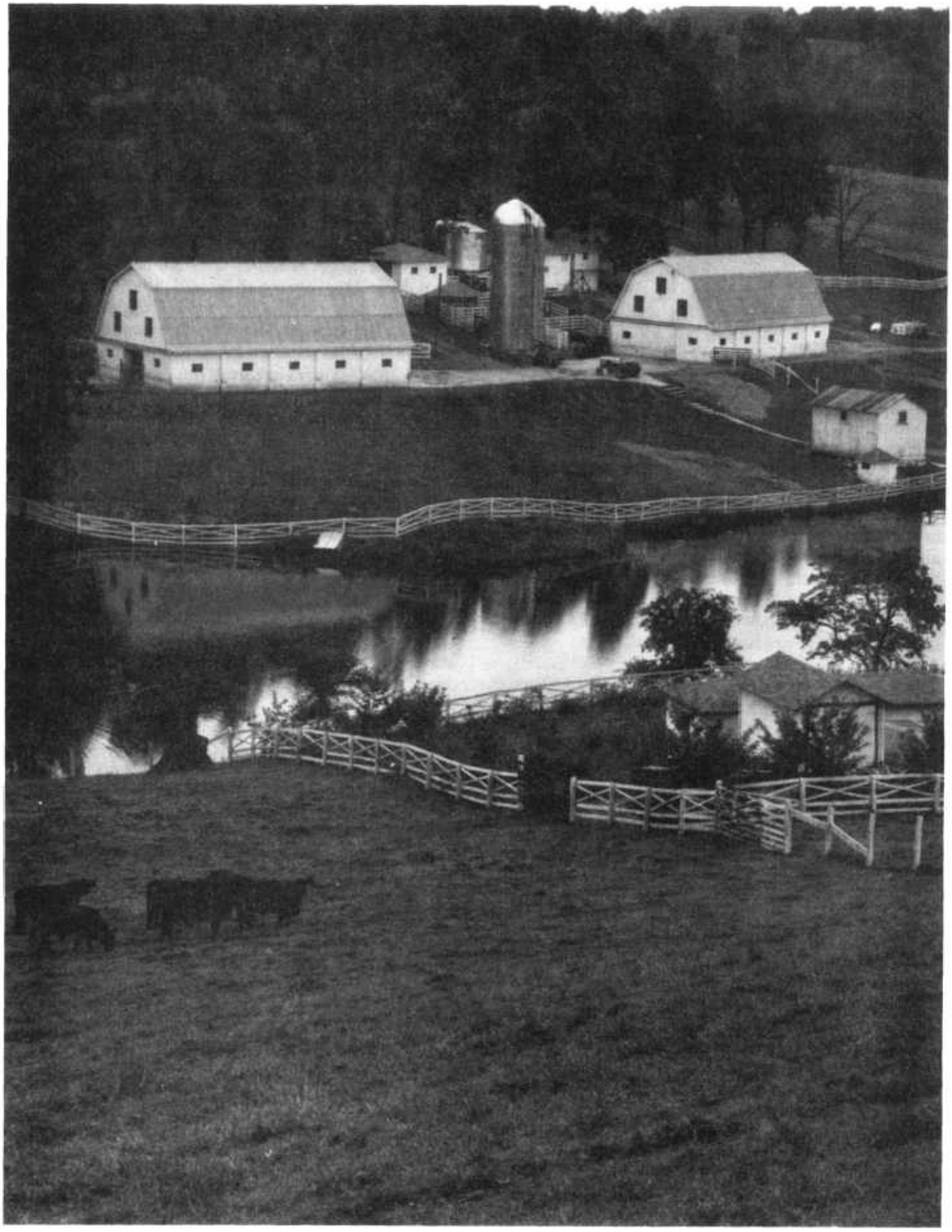
return and a return from the tax system) until it just equals the return that they could achieve after taxes in the alternative, but not tax-favored investment. In economic jargon, at this point, these high-bracket taxpayers are "indifferent" between the two investments. However, because their return from the tax system is less, lower bracket taxpayers would have a lower total return from the tax-favored investment than would be available from the alternative investment. They would not be indifferent between the two investments; they would be drawn into the alternative and out of the tax-favored investment.

In summary, in a tax-favored industry, the tax preference may overstimulate production and lead to lower product prices, or may cause the values of limited inputs, such as land, to be bid up—resulting in lower commercial rates of return. Finally, investments in a tax-favored sector would eventually find their way into the hands of the highest bracket taxpayer. The high-bracket owners of tax-favored assets would then achieve rates of return just equal to what they could achieve in alternative investments that are not tax favored.

These high-bracket taxpayers would be no better off than they would have been without the tax preference.[21]

One other point about the characteristics of resource owners in tax-favored industries needs to be made. To compete in a tax-shelter investment, the participant must need that tax shelter and use it to advantage. That advantage grows from having high income to shelter, but the source of the high-bracket income is irrelevant. The sheltered income might be professional fees earned by a doctor or a lawyer or it might be income earned on the farm. The competitive advantage flows to the high-bracket taxpayer whether the high bracket is built by bulls on Wall Street or by bulls in the barnyard. This point is not well understood. Even some very experienced and able practitioners appear to believe that the shelter's advantage does not exist where only farmers are involved. It does, of course, because the benefit is based on high-bracket income, not on its source.

[21]These results are dependent upon the mobility of capital across sectors of the economy. Capital is not, of course, perfectly mobile in the short run. It could also be that the highest bracket taxpayers do not own enough funds to purchase all farm assets, particularly when other tax-favored investments compete for the funds of the highest bracket taxpayers. If not, the indifference point between the alternative investment and the tax-favored investment is pushed down the income tax schedule. When this happens, taxpayers having higher tax rates receive a bonus to the extent that their tax system return exceeds that of the indifferent taxpayer. Such high-bracket taxpayers then do benefit from the tax system, because the investment is tax favored. Taxpayers having tax rates below the indifference point suffer a penalty because the combination of their tax system return and their commercial return produces a smaller total return than the similar alternative (non-tax preferred investment) would. They may, of course, remain in the tax preferred investment. If the investment produces commercial losses larger than their tax system return, such low-bracket taxpayers who do not leave the tax shelter may lose all their capital.



Chapter II: Implications of Tax Policy

In recent years, it has become apparent that the level of taxation—particularly in conjunction with the level of government expenditures—can significantly influence the economy as a whole. The form of the tax and the way in which it is imposed affect the distribution of income and wealth. People are believed to alter their behavior in response to tax law. They will weigh the benefits and burdens of avoiding or reducing taxes. Those who find it attractive will modify their activity. When a significant part of those involved in similar economic pursuits do so, their collective response will change that sector of the economy.

This chapter concerns the collective response by people to the Federal tax laws applicable to agriculture. The discussion focuses on how the patterns of ownership, the control of assets, the distribution of income and wealth, the form of organization, prices and supply of products, and the allocation of resources in the agricultural sector have been molded by behavior induced, at least in part, by tax law. It does not, however, discuss the relative importance of tax policies when compared with other factors that have influenced agricultural structure, such as credit availability, interest rates, market volatility, technological change, inflation, other job opportunities, or subsidy programs.

Some tax provisions are unique to agriculture. Others operate throughout the economy but in a way that discriminates between various production factors or forms of organizations. While some of these tax provisions were developed without thought being given to their effect on structure, others were designed to achieve particular purposes.

This chapter does not judge these tax laws or the features influenced by them. The purpose is to describe what has happened and, to the extent possible, what can be expected for the future. Individual judgments will depend on the particular orientation of each reader.

Land Prices and Ownership

Because the supply of land available for farming is limited while other farming resources are not, farmland is the key asset in farming. Its owners have absolute control over entry into farming by nonowners. If one is unable to buy farmland or to reach an agreement with an owner of farmland, there is no way to enter land-based farming. Also, unless ownership is to be severed from operation, low land prices facilitate entry into farming while high land prices make entry difficult. It is appropriate to begin with a discussion of the way Federal tax laws affect land prices and landownership.

Taxation of Gains

As discussed in chapter I, increases in the value of property are not taxed until they are realized through a disposition of the property. Then, the gain frequently is taxed as long-term capital gain with only 40 percent of the gain being taxed to individuals.[22]

Even this can be improved, however, by holding the asset until death. At death, increases in value that accrued during life are exempted from tax. In the heir's hands, the basis of the asset is changed to fair market value at the time of the decedent's death.

The analysis of real estate capital gains, summarized in chapter III, demonstrates that this tax treatment has substantial benefits, particularly for those who are in high tax brackets and who utilize high leverage (the ratio of the debt incurred in making the purchase compared to the purchase price). These benefits are produced by the deduction of interest and the deferral of tax on the appreciation in the land's value. They more than offset the tax liability incurred on the low annual cash return taxed as ordinary income. Since the net benefits are greatest for high-bracket taxpayers with the highest leverage, they can bid substantially more for land. The low annual cash return results in cash flow problems, and at least in the early years after purchase, the purchaser may need to augment the cash flows from the real estate with cash flow from other sources.

[22]Taxation of losses seems to have had little impact on structure. The treatment of losses is complex to say the least, but with proper planning, losses on business property may be fully deductible.

That analysis also demonstrates that when leverage is high, and if the current cash return is also high but the appreciation rate is low, the bid price for real estate either is reduced or increases only slightly as the tax rate increases. Under these assumptions, a higher tax rate results in a lower after-tax income and, therefore, a lower bid price for land.

High-bracket taxpayers are able to outbid those in lower tax brackets when the appreciation rate is high and the annual cash returns are low, as has been the case in recent inflationary times. Furthermore, high-bracket taxpayers prefer capital gain or exempt income to ordinary income and are willing to accept low cash rates of return as long as such low rates are accompanied by high rates of appreciation. Thus, the established farmer or nonfarm investor may be able to outbid the beginning farmer in the real estate market. In contrast, the beginning farmer, although probably more interested in cash flow than appreciation, must compete in a market with those who are more interested in appreciation than cash flow. The result is that entering farmers encounter increasing difficulties in competing in the real estate market and obtaining ownership of farmland. The beginning farmer may, however, have the opportunity to rent farmland from owners who acquire real estate more for its appreciation potential than its cash flow generating capacity.

The benefits that result from the deferred taxation of land appreciation at capital gain rate are greatly increased when the land is held until death because at that point, the entire appreciation is exempted from tax. A person expecting to hold the land until death as an investment for heirs, would be able to bid even higher than a buyer who at some point expects to realize the appreciation and pay tax on it. Also, the prospect of gaining exemption through death is an inducement to hold the land until death. Holding until death will restrict the amount of land on the market, further increasing prices in the face of an unchanged demand.

These results all depend on the tax shelter provided by land. Income in the form of appreciation is either deferred and then subjected to a lower rate through treatment as capital gain or is exempted by the basis rule if property is held until death. The expense or costs associated with these gains is interest that is currently deductible. Together these provisions create an ideal tax shelter that would appear to be generally applicable across our entire economy. There are, however, some very technical tax rules that help to guarantee and simplify this shelter when farm assets, principally farmland, are involved.

Interest on debts that are related to investment property is called "investment interest," and the amount of it that a taxpayer can deduct in any year may not exceed the total of investment income plus $10,000. Since the deduction is limited, the size of the tax shelter created by the combination of deductible interest and capital gains on investment property may be limited by this provision.

This limitation does not, however, apply to interest incurred to carry trade or business assets or noninvestment, personal assets. Technical tax rules determine whether a particular property is an investment or is held for use in a trade or business. Nearly all real estate and almost all other farm properties are treated as trade or business assets. However, the nearest competitors that offer the prospect of substantial appreciation such as stocks, gold coins, artworks, commodity futures, and similar assets are treated as investments, and interest on funds borrowed to purchase them is subject to the limitation on investment interest.

Consequently, there is some inducement to invest in land or farm assets if the limitation on deduction of investment interest seems likely to be applicable to a particular taxpayer. While this limitation could be faced by numerous taxpayers, it is likely much more pertinent to high-income taxpayers than to low-income taxpayers. This is an additional reason why they might choose to invest in business assets, including farm assets, rather than other properties.

The Estate Tax

Farmland also presents an estate tax shelter because of the special-use valuation provision for farms, which was adopted in 1976 when the taxation of estates was substantially revised. During the shaping of this legislation, farmers argued that estate tax values for farmland were unfairly estab-

lished by market value. Farm interests argued that without selling the land or removing it from farming, farm-operator families could not realize the high market values on which their estates were taxed. If the land were to be kept in farming, they said, its fair estate tax value should be the capitalized value of the annual cash flow, rather than market value. The Congress accepted this argument and adopted what is called the special-use valuation provision.

This provision confers different benefits on farmers with different income, wealth, and debt characteristics. Farmers with a large proportion of real property as part of their estate obtain a larger benefit from special-use valuation than those who own relatively more non-real estate assets. Those who own high-valued land receive a larger benefit than those with low-valued land; and farmers with more real estate and a higher debt load receive more benefit than those who have less property but a high equity interest. Renters receive little if any benefit from the special-use valuation provisions. Older farmers receive more benefits than younger farmers because of the expectation that death will occur sooner for an older individual. This prospect of earlier death causes the older farmer to put a higher present discounted value (that is, today's value of a benefit not expected to be realized until some future time) on the estate tax benefits of special-use valuation. As a consequence, older farmers should be willing to pay a higher price for the same parcel of land than younger farmers.

The size of an investor's estate influences the absolute size of the use valuation benefits, with those possessing larger estates receiving a greater net benefit from a reduction in the gross estate from use valuation. Thus, the maximum tax savings from the use valuation of land would range from zero for those with estates not subject to Federal estate tax to $350,000 for an estate in the 70-percent Federal estate tax bracket that is also able to reduce values by the maximum allowable amount, $500,000 ($750,000 under the 1981 tax act).

The lower estate taxes may carry another indirect benefit. The estate's need for cash will be reduced by the amount of lower taxes which means that less of the estate's property may need to be liquidated. Since liquidation generally has some associated costs—principally legal and executor fees and court costs—an additional savings will accrue to the estate. This additional benefit may make land somewhat more attractive than it would be just for estate tax shelter benefits.

The size of the benefits accruing from use valuation adds to the attractiveness of land as an investment, especially for investors who do not already own farmland or other eligible land. For example, a nonfarmer without land but with a $2 million estate could shift $1 million to a farm investment and possibly reduce the gross estate by as much as $500,000. If the investor can qualify for the use valuation provision, this shift of investments will yield a Federal estate tax benefit of $225,000. A farmer with a $2 million estate, half or more of which is in land, would derive the same dollar benefit from this provision, but would not have an incentive to purchase more land because the estate is already positioned to take maximum benefits from use valuation. This provision likely has created a demand for land by those who desire to qualify for the estate tax shelter—whether or not they are principally farmers.

In addition to increasing the demand for land, these provisions also restrict the supply of land offered for sale. Those who might otherwise sell land are encouraged to reduce estate taxes by holding enough land until death to qualify for special-use valuation. Such land is thus removed from the current market and does not return to the market until long after death, since the heir must hold the land for up to 15 years (10 years under the 1981 tax act) to obtain the entire tax preference. Indirectly, use valuation keeps the land off the market by reducing the estate tax liabilities, which reduces the necessity to convert land and business assets to cash for use in paying estate taxes.

The increased demand for land and constricted supply of land have undoubtedly produced higher land prices. This increase in land values, produced by the new estate-tax rules under the 1976 act, is a one-time increase, fully effective only when equilibrium is reached, with the oldest and the highest bracket potential estate taxpayers owning the land. Generally, landowners who held land in 1977, when

the transition to higher values commenced, would seem to have profited the most. Others who bought or who will buy later—if the transition to higher prices is not complete in an area—will also benefit from the higher values.

Those who want to reduce their estate taxes through these special-use valuation provisions will not, however, be able to realize these higher values through sales. Instead, the higher values result in the transmission of larger estates to heirs. Since heirs who convert the higher values to cash by selling land during the 15 years (10 years under the 1981 tax act) following death lose the tax benefits, most heirs undoubtedly will be slow to realize these higher values through sale.

There is another good reason for the heirs not to sell. The value of the property used by a decedent's estate in settling estate taxes becomes the starting point to measure profits or loss on a subsequent sale of the property. Since use value is below the market price, a subsequent sale will usually lead to a taxable gain. The prospect of paying tax on this gain will further discourage heirs from selling.

These features tend to lock heirs into their land. Only by borrowing can they convert these higher values to cash without paying a substantial tax price. Higher debt structures are thus encouraged; greater financial instability may flow from an unexpected downturn or weakening in prices—as occurred in 1977 and 1978. The greater land values may also induce a feeling of security that may deter saving from annual returns.

Other segments of society will also deal with the higher values. For example, the local assessor may translate them into higher assessed values and, thus, higher property taxes. Higher property taxes will, of course, decrease the farm's annual income.

The benefits of special-use valuation will not be available unless both landowners and heirs participate in management. Retired farmers or inactive landlords are likely to become active participants in the farming process, at least in form. Landlord participation in farming will frequently be through crop-share tenant arrangements. Yet, such tenant arrangements could make the landlord liable for the self-employment social security tax. This burden may be partly offset by the eligibility for social security benefits that flows from the self-employment tax, but these benefits may in turn be reduced under the provisions requiring a loss of benefits for excessive earnings from personal services.[23]

The resolution of this potential conflict between social security and estate tax rules is likely to vary from operation to operation, but the estate tax rules argue for an increase in tenant farming. For a landowner desiring to be an active farmer, the alternative to cropsharing tenancy is establishing an operation in which the owner hires an operator. However, the recordkeeping requirements and labor tax costs associated with employing a manager likely reinforce the push toward tenant farming provided by the estate tax. It may be that the tax laws, on balance, will encourage a tenant-landlord relationship through sharecropping.

In summary, the tax shelter possibilities in the estate tax provide incentives for structural change including the encouragement of higher debt ratios for farmers, increased prices for farmland, potential separation of the ownership and operation of farmland, additional pressures in the rental market (including the development of innovative leases to maintain qualification for these provisions for landlords), and entry problems because of the higher price that can be paid by older farmers for property with similar productivity. The reduced availability of land as some farmers choose to own land until death to obtain the tax benefits, combined with the increased demand to buy real property to obtain the estate tax benefits, will likely result in increased real estate prices. And since the tax benefits accrue only at death, additional divergence between the value of land and its income generating capacity would result in further cash flow problems for those buying land. The 1976 act

[23]Self-employment income may also produce another benefit. A taxpayer who has self-employment income will qualify for a Keogh pension plan that allows a deduction up to $7,500 ($15,000 under the 1981 tax act) for contributions to the plan in any tax year. This retirement savings deduction under a Keogh plan is considerably larger than the largest allowable deduction where there is no self-employment income.

has been in effect over 4 years; whether the markets for farmland have already adjusted is unknown.

Growth and Continuity of the Firm

There are several aspects of Federal tax policy that likely have influenced the direction of farm size, organization, and continuity.

Cash Accounting

As noted earlier, under cash accounting, farmers report income in the tax year when it is received, and they deduct expenses in the tax year when they are paid. Under accrual accounting, income is taxed in the year in which it is earned regardless of when payment is received, and deductions are taken in the tax year in which the expenses are incurred, whether or not paid. Cash accounting gives taxpayers the opportunity to create tax assets and tax liabilities. Well-informed taxpayers have taken advantage of these opportunities and have created tax assets that are larger than their tax liabilities. These tax assets are available to fund consumption expenditures, further investment in the farm, or investment in off-farm assets. Since some of these tax assets undoubtedly were reinvested in the farm operation, farms appear to have grown more rapidly than they could have if cash accounting were not used. Under this theory, the largest tax assets can be created by the highest bracket taxpayers who are then provided with more funds to grow than are lower bracket taxpayers.

In general, this theory seems accurate, at least to a limited degree. In a tax-sheltered industry, the rates of return reach equilibrium when the combined commercial return and the tax system return are sufficiently high to make the benefits from a shelter investment no different from the benefits of a similar nonshelter investment. Since the tax system benefit varies as the marginal rate varies, indifference between the two investments exists only for those taxpayers having some particular marginal rate. Taxpayers with tax rates above this indifference level have a bonus from the tax system because their tax system return is higher. Taxpayers below this indifference tax rate suffer a penalty because their tax system return is lower. All taxpayers should have the same commercial returns.[24]

While the commercial returns are equal for all taxpayers, they are lower than they would be if the tax shelter did not exist. All taxpayers suffer equally from this aspect.

For taxpayers above the indifference tax rate, the tax system has provided more funds for growth than would have been provided by a nonsheltered investment. Taxpayers below this tax rate have less funds for growth than they would have if shelters were not available. Those at the indifference rate have the amount that could be earned in a nonsheltered industry, but they have less than taxpayers in higher brackets. A circle develops. Those above the line grow and hence have more income and higher tax rates that produce larger tax system assets and thus more funds for growth. Those below the line suffer exactly the opposite. They have fewer funds to use for growth. They fall further behind because as the higher bracket taxpayers invest their greater funds in farms, the indifference tax rate moves upward.

Cash Accounting and Capital Gains

The returns from cash accounting are increased substantially when sales proceeds from the assets produced through fully deductible costs are taxed at capital gain rates. In these circumstances, if there is other income to offset the deductible costs, the tax benefit from the deduction will exceed the capital gains tax on the sale of the asset so long as the sales price is less than 2½ times the cost of production. Another way of looking at this matter is to say that a taxpayer in the 70-percent bracket can break even selling for $41.66 at capital gain rates a hog that cost a deductible $100 to raise. A taxpayer in the 50-percent bracket cannot break even until the price of such a hog reaches $62.50.[25]

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[24]This statement is somewhat of a simplification. Prices should be about the same for taxpayers who sell at the same time in the same market. The net return to a particular operation also depends on costs which may well vary from operation to operation. Thus taxpayers can expect to have equal prices although their net commercial or market returns may vary.

[25]The formula for deriving these amounts is set out in footnote 1 in table 1.

This conversion of deductible capital expenditures into long-term capital gain produces a strong incentive to expand operations with two aims. The first is to increase the tax bracket through higher unsheltered, taxable income. The second is to combine shelter assets with unsheltered income. For example, grain farms (which can be considered as unsheltered in any year in which affairs cannot be arranged so as to reduce taxable income to zero) might be encouraged to try hog or cattle raising. Those in hog or cattle raising might find great financial rewards in expanding into grain farms.

If farmers realize that their competition may have these advantages, they are prepared to meet the competition. Some astute low-bracket farmers will realize that in the long run there are two choices. One is to sell out. The other is to raise the level of income so that the shelter can be exploited. This then, is an additional encouragement to expand operations.

A concluding note seems necessary. All of these results presume that taxpayers have ample unsheltered income in a progressive tax system. Put another way, a shelter is good only because there is a tax that would otherwise be imposed on income. Without shelters, a progressive tax system presumably would place high-income taxpayers at a disadvantage leaving them with a smaller percentage of income to use for growth than lower income taxpayers would have. Tax shelters, however, may produce the opposite result and leave a greater proportion of the income from a tax shelter in the hands of high-bracket taxpayers than is left in the hands of low-bracket taxpayers. Even when that happens, high-income taxpayers may still pay higher average tax rates on their entire income (sheltered or nonsheltered) than low-income taxpayers pay on their entire income.

Incentives to Incorporate

As noted in chapter I, farmers may be encouraged to incorporate their operations because the overall tax burden on income earned by a corporation is sometimes less than the tax burden that would be incurred if the same income were earned by a sole proprietor. Also, corporations may facilitate gratuitous transfers of partial interests in the farm assets. Finally, the after-tax cost of some fringe benefits may be less if provided by a corporation to its shareholder-employees than if the same benefits were purchased directly by the individuals.

The tax law thus encourages some farm operations to incorporate. However, having encouraged the transfer of assets to corporations, the tax law then raises a new set of problems. First, putting the corporation's earnings remaining after salaries, director's fees, and similar expenses into the shareholder's hands can usually be done only at a tax price—an individual income tax paid by the shareholder on the dividends. This tax on dividends can be avoided by not paying out the earnings, by allowing them to accumulate at the corporate level.

While accumulation at the corporate level is encouraged, that route is not without obstacles either. When accumulations of earnings inside the corporation reach $150,000 ($250,000 under the 1981 tax act), the possibility of an additional corporate tax on further accumulations arises. This additional tax need not be paid, however, if the additional accumulation serves the reasonable needs of the business. While the "reasonable needs of the business" is not an easily defined concept, it does include the expansion and growth of the firm through asset purchases.

The firm thus is induced to grow to prevent the disagreeable alternatives of either facing the accumulated-earnings tax or having the shareholders face the tax on dividends. While the tax rules do not require that the growth be in the same business that produced the earnings, few small entrepreneurs will be inclined to take on responsibilities in an unfamiliar business. The conclusion that expansion will normally be in the farm business seems warranted.

Death may offer an opportunity to remove some of the earnings from the corporation at bargain tax rates through a redemption of shares that will be treated as a sale of the stock. A redemption may not have any tax consequence because the basis of the stock for computing gain will be equal to its value. Since this opportunity is literally a once-in-a-lifetime matter, it encourages the assumption at the corporate level of new financial burdens at a shareholder's death to provide funds for the

redemption. These new burdens may weaken the financial strength of the firm significantly—at a time when there also might be a shift in management to add to uncertainties.

Both lifetime and death transfers, then, are facilitated by incorporation. There is, in turn, more likelihood that the firm will be continued. Firm continuity may mean that fewer assets will be liquidated. The supply of farmland—for a beginning farmer or for expanding an existing operation—may be reduced. Also, if there is no management heir, continuity of the business may mean that ownership and operation are more likely to be separated. Ownership will be maintained to prevent a loss of estate tax benefits that depend on ownership, but management will pass to others. Absentee ownership may be encouraged.

The tax and practical advantages flowing from the incorporating of a farm are no different from those for incorporating other businesses. However, some different impacts are felt in the farm sector, because the key asset in farming is frequently land. The supply of land is limited, and thus, generally applied rules have an impact in agriculture that might not be felt in sectors where basic resources are theoretically far less limited. Even so, if the incentives to incorporate are troubling, the trouble extends across the entire economy.

Sheltering and Incorporation

The earlier discussion about farming as a tax shelter concluded that tax sheltering offers significant tax benefits to individual taxpayers. An argument also has been made that taxes will be lower if the farm assets are incorporated. The next few paragraphs reconcile these two themes.

Farm operations usually consist of several different assets; each asset has its own potential for tax sheltering. For some, it is high; for others, it is low or nonexistent. Farm tax advisors readily recognize these differences when making plans. The assets with high shelter potential are kept in the hands of individuals, and those expected to generate taxable income are placed in the corporation.

For example, land has a high tax shelter potential. Its carrying costs (interest and property taxes) are deductible; annual returns from it are low and probably inadequate to carry it; and its appreciation, not currently taxed and perhaps not taxed at all if left in individual hands, is expected to be substantial. The owner-operator may, for example, keep the land or other assets with high shelter potential and transfer other assets to a corporation to obtain the benefit of lower tax rates at the corporate level. Such an arrangement may allow the land expenses to shelter the individual's income from other endeavors while taxing the balance of the farm income at the lower corporate rates.[26]

This example is simple and does not touch on the myriad of arrangements that can be made to obtain the maximum tax benefits from sheltering and imaginative use of corporations. Tax and legal rules applicable to these arrangements are, of course, complex and technical; and in some circumstances, greater tax benefits can be gained from arrangements different from this simple example, perhaps by incorporating the entire operation. Expert advice is necessary to develop these arrangements without altering the substance of the operation.

Installment Payment of Estate Tax

The 1976 Tax Reform Act also allowed qualifying businesses, including farms, to pay estate taxes over a period beginning 5 years and 9 months after death and ending 14 years and 9 months after death. Estate taxes on $1 million of the estate's value bear an interest rate of 4 percent during this period of extended payment. If the land or business is disposed of during this time, the deferred payments are accelerated. These provisions have the effect of discouraging sales of farmland before death, at death, and after death.

The use of installment tax payments dramatically reduces the burden of the tax liability. The tax advantage gained through this provision may encourage the purchase of business assets that qualify; and farm property will likely be among

[26]Obviously, the balance of the farm income that is taxed to the corporation is greater than the amount that would have been taxed to the individual if the operation had not been divided. The individual's income is reduced by an amount just equal to the amount by which the corporation's income is greater.

such assets. Once assets are acquired, the taxpayer is discouraged from making sales before death because the estate must be comprised of at least 65 percent (35 percent under the 1981 tax act) qualifying business assets. This provision will encourage the transmission and, thus, the continuity of qualifying businesses.

Estates that utilize the use valuation and installment payment of tax provisions will encounter fewer pressures to liquidate property at death, and thus will be able to transfer larger amounts of wealth to succeeding generations. The result will be better opportunities for heirs who inherit property to continue the farming operation, but fewer opportunities for those who do not inherit property to obtain control of farmland and other agricultural assets because of the reduced offerings in the market.

One other aspect of business continuity should be mentioned. An operation that is broken up at death may well be sold to several different purchasers, reducing the concentration of ownership. These estate tax provisions reduce the need for liquidation, and thus diffusion of ownership. As a consequence, over time, such provisions are likely to result in increased concentration of ownership and control of farm assets.

Finally, at the very least, there will be some pressure on the heirs not to sell until long after death. When interest rates are high, the lower interest rate on the tax produced by the first million dollars' worth of estate will provide so large a benefit that some heirs will hold the farm intact for the sole purpose of holding on to the benefit of the lower interest rate.

These heirs are free to change their relationship to the assets—for example, from owner-operators to sharecropping landlords—so long as the assets remain in the heirs' hands for 15 years. Although ownership by heirs is necessary, no particular form of ownership is encouraged. Thus, this provision differs from special-use valuation that requires the heir to continue some degree of participation in the farming operation.

Incentives for Capital Investment

The investment tax credit and accelerated depreciation are incentives for capital investment in machinery and equipment. Some analysts have argued that they produce an incentive for firms to grow by reducing the capital costs of equipment. Purchasers of equipment frequently find that the machines' capacity exceeds that needed in the operation for which purchased, and the excess capacity encourages firm expansion to utilize the equipment fully. The empirical and theoretical work on this issue is conflicting. There is no solid basis on which to generalize about the impact of these provisions on farm size.

Some empirical work suggests that tax rates rise little or not at all as farm size increases from medium to large. This has been explained by the availability of tax incentives for investment that offset tax liabilities that would otherwise be due on the larger farm income associated with larger size. This rather level tax rate allows farm size to increase and benefit from the economies of scale associated with increasing size without incurring higher tax rates. In this view, the investment credit and accelerated depreciation constitutes incentives to grow. They neutralize the progressive tax system to the point where tax costs are nearly proportional even with increasing farm size and farm income. They thus offset the major increase in costs associated with increasing size and permit firms to benefit from the decrease in costs flowing from economies of size. While this theory is plausible, it is not yet fully tested.

Although some observers state that these capital incentives encourage firm growth, no argument has been made that they provide disincentives or act as a retardant to growth. Until the evidence is more compelling, a firm conclusion about capital incentives and firm growth is unwarranted.

Taxes on Labor and Incentives for Capital

The Federal tax system appears to impose taxes on labor while allowing tax breaks for capital investment.

Taxes on Labor

The Federal tax system imposes two taxes on wages up to certain maximum amounts. The social security tax is imposed equally on the employer and the employee; it is also imposed on the business profits of the sole proprietor and partnerships. Contributions for unemployment insurance are exacted from any employer who, in either the current or previous year, employed 10 or more workers at any time in each of 20 or more weeks in the year, or who, in either year, paid $20,000 of wages in any one quarter. If neither of these thresholds were reached in the previous year, there is no liability for these taxes in the current year until one of them is reached. However, once the threshold is reached, all wages for the year, including those paid earlier in the year, are subject to the tax. Thus, wages paid in October can cause a tax to fall on wages paid earlier in the year. As a consequence, the marginal cost of wages just over the threshold can, at least in one year, be quite high.

Frequently, an employer is also required to make contributions to workers' compensation funds. Qualifying criteria and the level of contributions vary from State to State, but they are often quite significant.

These levies not only impose financial burdens; they also sometimes require the keeping of records that otherwise would not be maintained. For example, a simple checkbook and ledger would probably be sufficient wage records if social security taxes were not withheld from the employee and also paid by the employer. More detail and perhaps a payroll register will be required to account for social security contributions and income taxes withheld from wages. As the payroll grows toward liability for unemployment insurance contributions, even greater detail will have to be shown, and additional records will have to be kept. If liability for this tax is to be avoided, it may be necessary to show that particular workers did not work at particular times.

Many farmers may not consider the cost of the tax as onerous as the cost of maintaining such records. Since the recordkeeping system must be in place for those who may be close to the minimum requirements, it could discourage the use of labor beyond amounts that quite clearly will not result in a liability for tax.

If the recordkeeping system is implemented, then the operator close to qualifying might monitor the use of labor very closely to prevent qualifying for the tax. Some States have an initial fixed charge for some of these taxes, particularly for workers' compensation, that does not increase until very substantial wages have been paid. In such a State, the marginal cost would be highest to those who barely exceed the qualifying minimum. Consequently, the use of small amounts of additional labor may be discouraged among those already near the qualifying point. For those who are uncertain whether liability will be incurred, the tax can also create uncertainty about total labor costs.

A farmer in that position might deal with the uncertainty by buying more or larger equipment and substituting it for labor and, thus, move further below the qualifying point. By doing so, the need for records and the uncertainty of knowing whether the tax would arise could be reduced. In contrast, if liability for the taxes were accepted, the marginal costs and complications of the recordkeeping can be reduced by spreading these costs over large increments of labor.

An employer who must pay one or more taxes on labor costs may attempt to shift the incidence of the tax by paying lower wages than would be paid if there were no liability for labor taxes. If the employer is successful, the employees, in effect, pay the tax.[27] If wages are not so reduced, whatever part of the tax cannot be passed through to the buyers of farm products is paid by the farmer. Therefore, the farmer has an incentive to consider substituting capital for the labor that has been made more expensive by taxes.

Such substitution is far from a certainty, however. Increments of capital may be so large in comparison to the additional labor cost that little or no sub-

[27]Presumably, if an employer is successful in making this shift, the market wage rate for labor declines. An employer who is not subject to tax then pays lower wages but also does not pay the tax. Such an employer then continues to have a competitive advantage over the taxed employer.

stitution occurs, at least until a large amount of new capital equipment can be added. Whether conditions for substitution occur is simply not known. Similarly, the real incidence of these taxes is not known.

There are circumstances in which these taxes will discourage more intensive capital use. For example, workers' compensation insurance rates for workers handling mechanized equipment are frequently quite high. If the farmer is more or less indifferent about the use to which land is put, the choice may well be toward unmechanized cropping where the rates will be lower.

The base for reaching conclusions and making strong generalizations about these labor taxes has not been established either theoretically or empirically.

Incentives for Capital Investment

Over the past quarter century or so, Federal tax policy has moved generally in the direction of reducing the cost of capital investment. Accelerated depreciation rules and the investment tax credit have been the more notable devices.

The investment tax credit does not reduce costs, however, unless there is a tax liability against which it may be applied. Accelerated depreciation means the most to those who can use it to offset income that would otherwise be subject to the highest tax rates. Thus, accelerated depreciation and other similar deductions likely confer the greatest benefits on established operations or high-income beginning farmers. They provide few benefits for those who have low incomes and little capital. These rules may thus tend to favor farmers who want to expand over those with few nonfarm resources seeking to enter farming.

While a buyer of equipment is the legal beneficiary of the investment tax credit and fast depreciation, theoretically, these benefits could be shifted either to the seller of the equipment or to other resources in the production process. Economic theory seems to agree that, except in times of equipment shortages, these benefits are not shifted to the seller of the equipment. Some economists have theorized that returns to farmland are the residual returns in agriculture. If this theory is partially or wholly valid, even tax benefits on machinery and equipment may find their way into the landowner's hands. If so, these provisions, too, have helped maintain an upward pressure on land prices.

Prices of Products

Under regulations issued very early in the history of the income tax law, the costs of developing assets such as trees and vineyards that produce fruits and nuts have been deductible as they are paid. In reality, these costs are capital costs; in most pursuits, the tax rules do not allow the deduction of capital costs from current income. The proceeds on subsequent sale of the assets produced by these costs often are taxed as long-term capital gains.

Since the development deductions reduce ordinary income that frequently would bear a very high tax rate, and since the proceeds from the sale of the property produced through the deduction may later be taxed as capital gain, development of these crops is an ideal tax shelter. The tax benefits flowing from the deductions are much larger, and they are realized much earlier than the tax liability incurred upon the sale of the improved property. When these circumstances exist, the financial returns from the development costs are enhanced, rather than diminished, by the tax system. The rate of return on them is greater after taking taxes into account than it was before taking taxes into account.[28]

A subsidy of this kind is, of course, quite salable, and in the sixties a number of firms began to offer high-income taxpayers a chance to buy development schemes which converted current income deductions into assets in the form of orchards and vineyards. Because of concern that production would be overstimulated by investment syndicates, citrus and almond growers persuaded the Congress to repeal rules allowing deduction of development costs for almonds and citrus groves. The shelter still exists for other perennials.

The shortrun results of requiring development costs for citrus and almonds to be treated as capital

[28]This negative tax effect exists only if and when the taxpayer has other income, either from labor or other investments, that without the tax shelter would be subject to ordinary income tax.

costs, rather than expenses deductible from current income, were slower increases in production and hence increased prices of these products. The tax shelter from developing many crops was not affected by this legislation, production of them continued to increase, and the prices for them decreased. In the long run, however, supplies of crops in which development costs had to be capitalized also increased in response to the temporarily higher product prices, and these larger supplies eventually resulted in lower prices for the crops. Even so, the quantities of citrus and almonds are lower and their prices higher than if capitalization had not been required.

Changes in Management Practices

Several features of the tax system affect management practices and, therefore, bear on efficiency and allocation of resources. A few examples will illustrate these developments.

Feed Lots

Until recently, there was little interest in fattening cattle in large feedlots segregated from either the ranch or the farms producing the crops to feed them. In the midsixties, several promoters found that, by using feedlots, they could construct and syndicate tax shelters that deferred for 1 year the investors' taxes on income generated in other pursuits. The maximum deferral at the least expense was generated by waiting until late in the year to create the tax-sheltering entity and also having it engage in its transactions near the year's end.[29]

Some observers believe that heavy tax-shelter buying near the end of the year increased the volatility in commodity markets. This heavy yearend buying was sometimes followed by changes in plans or heavy selling in the new year, so the argument runs.

Whether production or marketing efficiency was increased or decreased by these developments has not been determined. The economic rules and the timing of commercial transactions are frequently different for an investment having the primary purpose of providing a tax shelter, and these differences could well affect efficiency.

Swine Husbandry

Another example of tax rules influencing management practices is found in the swine industry. Without the tax policy presently in effect, hog producers typically would stock their breeding herds with sows to be used for a number of farrowings before being sold. Sows usually produce larger litters and provide better care for the offspring after the first litter. In such an operation perhaps only one in every four or five females would be kept for breeding. The balance of the females would be sold as soon as ready for market, and almost invariably in less than 1 year. In an operation of fairly constant size, for each young female retained for breeding purposes, one mature sow would be marketed. Sales of sows held for breeding for more than a year would be a fairly low percentage of total sales.

The tax law, however, allows a lower tax rate on sales proceeds of animals held for breeding for more than a year. Such proceeds can be reported as long-term capital gains. The lower tax rate is an incentive to increase the proportion of sales from qualifying animals, by holding all gilts through only one farrowing. A one-litter sow usually is just over 1 year old and, thus, the proceeds received on sale qualify for the lower capital gains tax rate. Therefore, there is a tax incentive to farrow gilts and sell them after a year, replacing them with other gilts. This increases the number of sows moved through and the amount of income subject to capital gains treatment (rather than higher ordinary income rates). The practice of using gilts for a single litter, despite the inferior farrowing and mothering qualities, is adopted for the sole purpose of reporting a higher proportion of total hog sales as capital gain.

Managing the Tax Shelter

In a tax-favored industry, the annual returns on the investment consist of the commercial return from the sale of the product and the return from the management of tax assets and liabilities. The total

[29]The 1976 Tax Reform Act and amendments in the 1978 Revenue Act had an unascertained impact on these practices, but some observers believed them to have decreased.

return has two distinct sources—the agricultural product and the tax system. The securing of these very different kinds of returns requires very different skills and introduces into the decisionmaking process considerations unrelated to the growing of agricultural products.

The commercial returns from the product depend on product prices, weather, technology, fertilizer, growing conditions, interest rates, and the skill and luck of the entrepreneur. Farmers have faced these risks and have accepted them as an inherent part of farming. With some luck, the farmer could expect financial reward more or less commensurate with his or her proficiency as a farmer.

In contrast, the return from the tax system depends on careful tax planning and the tax rate of the participant. A farmer with no income to shelter cannot garner this return, and will have to survive on the return from farming while a competitor who can use the tax shelter will obtain both benefits. The farmer who cannot shelter is at a competitive disadvantage. For example, through diligent application of horticultural skill and animal husbandry, a farmer might double net commercial returns; yet, find at year's end that a competitor with a lower net commercial return who can use the tax system to advantage has done better financially. In short, in a tax-favored industry such as farming, success depends not only on entrepreneurial skill and luck; it also depends on the successful management of the tax system assets and liabilities. The rules of the game demand not only agricultural expertise but also tax expertise and a number of other special skills.

The Tax Expert. Tax management is not a natural skill. Rather it is acquired through long, tedious hours contemplating complex and technical rules. Few farmers are sufficiently experienced to manage their tax system assets and liabilities. Instead, they must rely on the tax expert. The lawyer and the accountant have become a necessary part of the management team. The need for the tax expert is planted firmly in the tax shelter, and virtually every farm offers a tax shelter to some extent.

The Promoter. Having realized that farm tax shelters are attractive to many high-bracket taxpayers, the promoter arrives on the scene to assemble farm assets for sale to others. The promoter seeks to distribute the ownership of the farm assets broadly and frequently uses the help of investment houses. In this kind of an operation, the ownership of the asset may be lodged far from the farm. This increased distance between the investor and the investment will have an impact on the way in which decisions about the farm are made. While the land market is generally perceived to be a local market, the promoter will seek a wider group of buyers. The promoter assures that the tax sheltering potential is capitalized into the land's value; that the land will sell at the highest market value that includes the capitalized value of its return from the tax system.

The Manager. Wide distribution of farm assets among the public will also increase the need for farm managers. Not all buyers of farm assets will have either the skill or the desire to manage farm assets. If, however, they are induced into ownership through the tax benefits, there will be a need for managers. Managers may work either as employees, independent agents, or in some cases, as tenants, and ownership will be separated from management.

The Lender. While farmers have always needed credit, in a tax shelter the need for credit at a particular time and in a particular amount is greatly heightened. Credit may be necessary to prepay expenses or to hold a crop while waiting to make a sale in the next tax year. Also, the leverage provided by borrowed funds will greatly increase the profitability of the tax shelter. Highly leveraged debt structures are encouraged because the cost of debt is reflected through fully deductible interest, and even an 18-percent interest rate may not be considered high if it will offset high-bracket income and produce a large tax savings. For these reasons, the lender may be more important to the tax shelter than it is to the agricultural operation. When the tax shelter and the agricultural operation are combined, the lender is indispensable. If some farm assets are widely distributed, as they inevitably will be, the lender may be the international banker, operating from a distant financial center.

The Decisionmaking Process. These different skills are necessary because the decisionmaking

process in a tax shelter is quite different from that necessary to make agriculturally sound decisions. The tax benefit frequently turns more on the form of the transaction than on its underlying economics. Thus, transactions may be planned, and then replanned and renegotiated merely for tax purposes. Rather than negotiate a transaction for the greatest commercial benefit, the parties design the transaction to fit the tax goal while at the same time changing the fewest possible matters of economic substance. Farmers and their advisors expend considerable effort to manage the tax system. Sometimes this effort and the form of the transaction may not be consistent with sound commercial practices.

There are, of course, good reasons for putting this emphasis on tax considerations. Not only does the tax system enhance the rewards from farming, but once the form of the transaction is established, the tax advantage is frequently much more certain than the return from production. As noted, decisions about production depend on a number of vagaries entailing great risk. Frequently, the decision about the tax system can be reduced to the relatively finite risk that the lawyer's opinion is not correct.[30] If there is a choice between taking a risk on the tax system or an agricultural risk, the former is likely to be taken. Decisions, then, are made and transactions are molded to fit the tax expert's opinion.

Decisions based solely on tax considerations are epitomized by the tax-shelter investor from outside agriculture whose major, and perhaps sole, motivation for the investment lies in the tax benefits. When the tax planning works out, the taxpayer will have little at risk. This is because most of the funds going into the investment are "soft dollars" or "funny money" that would otherwise have been sent to the Federal Treasury as taxes on other income. With little turning on the commercial factors, there is less need for commercially sound decisions. Commodity and other markets may be rendered unstable by participants who simply do not heed the signals sent through the price mechanism.

One should not conclude from this discussion that tax benefits are either certain or simple to obtain. They may be when the only obstacle between the farmer and the tax benefit is the lawyer's opinion. Only rarely will that be the case. Usually there will be difficulty in arranging the underlying transaction to fit the lawyer's opinion. That must be done with little change in substance, and frequently it must be done with a commercial adversary across the bargaining table. An adversary who suspects the tax attributes of the transaction might insist on some personal commercial advantage as the price of acquiescence to the formality required by the tax law. In these circumstances, there can be substantial uncertainty that the transaction can be molded to fit the tax needs. There is, then, a need for expertise to manage the tax system. Proper management may mean the difference between profit and loss. Visions of the difficulties that befall one who fails to manage the tax shelter lead to the treadmill.

The Treadmill. Under the cash method of accounting, sales proceeds are taxed only when they are received, and expenses are deducted when they are paid. Taxes can be deferred by prepaying expenses and delaying the receipt of cash from sales of commodities. Farmers are encouraged to delay the taxation of income either through deferring the receipt of sales proceeds or anticipating the payment of expenses for future crops.

When the farmer takes advantage of this incentive, assets are held available for use on the farm and are not consumed or devoted to other uses. A financial reserve in farm assets is created. This reserve is larger by the amount of the tax that was saved on its creation, and it can be called upon to finance operations in a year in which crop harvests or prices are poor. This reserve gives farmers financial resilience and may tide them over difficult financial conditions. It is a substantial benefit, and it is produced by doing what, in large part, is natural by delaying the payment of tax liabilities as long as possible. It may well keep a firm from going under.

[30]Even if the lawyer's opinion does not state the law accurately, it will provide a basis for the filing of a tax return that secures the desired tax benefit. Once the return is so filed, the risk then lies in the possibility that the Internal Revenue Service will audit the return; that the items in question will be examined; that the examiner will reach a conclusion different from the opinion; and that the taxpayer will be unable to obtain through settlement or litigation part or all of the desired benefit.

Such deferral, however, has another dimension. If next year's expenses are paid prematurely, or if this year's income is deferred to next year, income and the potential tax bill in the following year may be increased dramatically unless these practices are repeated.

Given the progressive structure of our tax rates, there is a significant incentive to engage in these practices on a recurring basis. Each year, the same alternatives are presented; pay up for last year's tax-deferring practices or reduce this year's taxable income by pushing some of last year's tax forward through even larger deferrals of income or even larger anticipations of expenses.

Such deferrals and anticipations may be hard to arrange and may render some commercial negotiations rather frantic because failure to conclude them successfully can mean that a large tax liability will accrue. While analytically, this liability would be taxes that were saved in earlier years, such savings likely would not be held by the farmer in liquid form awaiting application to tax bills that accrue when the shelter ends. They would have been invested or consumed. The end of the shelter then might produce a large tax bill while funds for its payment would be scarce.

There is a high degree of uncertainty and potential pitfalls associated with managing the tax shelter. Continual expansion of operations will ease some of the difficulties because growing deferrals and anticipations are more easily reconciled with expanding operations. The potential liability associated with the cessation of sheltering activity, however, is an inducement to continue it. Once on the treadmill, the ways to get off are few.

Cessation of the farming operation is much the same as the cessation of sheltering. Except in one case, a large tax liability is likely to accrue. The exception is death—death absolves the farmer of past tax liabilities by allowing the tax basis in the hands of the decendent's estate or heirs to be moved to market value. This basis adjustment will likely reduce or eliminate the tax on untaxed gains attributable to prior tax sheltering. There is, thus, a further encouragement to maintain ownership of farm assets until death.

The Bottom Line

In summary, if a sector of the economy presents a tax shelter opportunity, it will likely have lower product prices; become owned by high-bracket taxpayers; likely have a greater separation of management from ownership; perhaps become less sensitive to market forces; be dependent upon highly sophisticated financial and tax advisors; and be subject to the acquiescence of lenders. While those who have managed and operated a traditional family farm can also operate successfully in this much different environment, the rules, the rewards, and the mistakes are all different. Only rarely will a farmer be comfortable without competent and highly specialized expertise.

The picture that emerges from this analysis is not, of course, entirely replicated on all farm scenes, but it has become more commonplace over the last 25 years. It exists even in those areas where the tax shelter has not been heralded by the arrival of the outside investor.

Conclusion

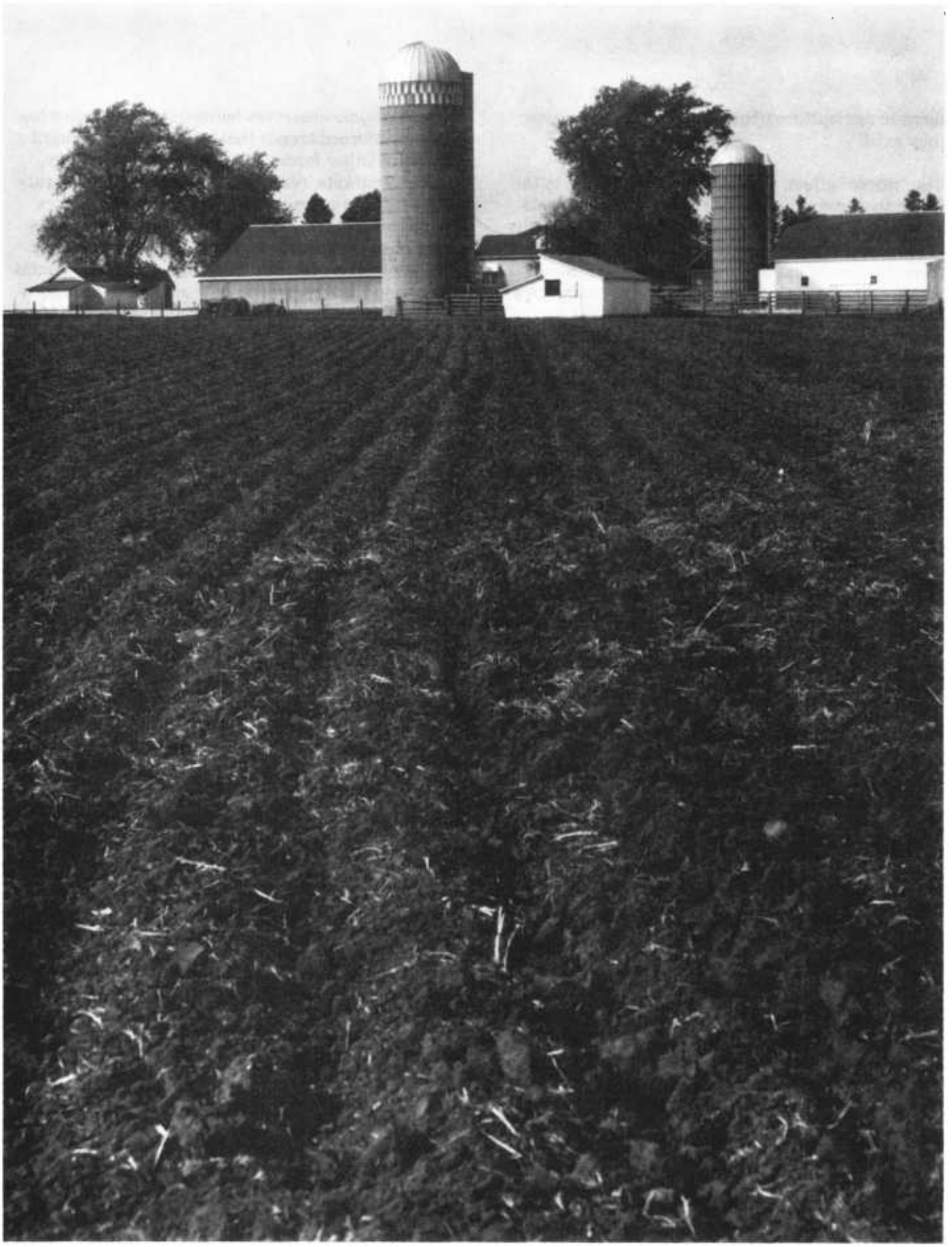
Were agriculture less tax favored than it is, land prices would undoubtedly be lower, there would be less need for sophisticated financial and tax advice; holding periods for farm assets would likely be less; there would likely be a higher proportion of owner-operators in farming; there would be fewer high-bracket taxpayers in farming; and farmers might even be younger on the average. These results are remarkable because however beneficial or detrimental one may think that these results are, they have never been an explicit policy goal.

How does it happen that the point reached was no person's goal? To answer this question as it relates to the impact of tax laws upon the structure of agriculture, there is a dichotomy that must be kept firmly in mind. It is that there may exist a conflict between effects of a policy on an individual and effects on society as a whole. Tax incentives to certain conduct by individuals may inspire such conduct by many. The conduct may produce the benefit to them of reducing their current tax burdens, but conduct by many such individuals may produce management or other economic pat-

terns in agriculture about which differing views may exist.

The "micro" effect, that is, the consequences to the individual, sometimes differs from the aggregate or "macro" results to a broader group. Behavior by the group produces results that are quite different from the sum of each individual's activity. Some observers believe that it is this difference between the individual and the group appraisal that produces much of the confusion and controversy over farm policies, particularly farm tax policy.

Finally, some observers believe that tax policy has only reinforced trends that were largely brought about by other forces. In their view, technology, export markets, readily available credit, crop subsidies, cheap energy, inflation, and other factors have had a much stronger influence on the structure of agriculture than tax policy has had. They believe that an entirely different tax system would have had little impact on changes in the agricultural sector. As yet, there is no way to determine whether this view or the one that argues that tax policy has been very important is the better.



Chapter III: Taxes and Agriculture—The Research Results

This chapter provides the basis for the inferences in chapter II concerning the structural impacts of Federal tax provisions. Several studies and discussions on the impact of Federal tax laws on farmers are reviewed. Some of these studies were completed under contract with the U.S. Department of Agriculture. Because of time and budget limitations, empirical or numerical analyses of the impact of some of the important tax provisions were either not funded or not completed at the time this report was written. In these cases, previous studies were integrated with the original research completed for the Department, and both the original work and the older studies are discussed below.

Production and Price Response

Legislation in 1969 and 1970 required capitalization of all citrus and almond orchard and grove development costs for the first 4 tax years after planting. These provisions were sponsored by industry participants who were concerned about the long-term impact on acreage, production, and prices of syndicated tax shelters in these crops. Capitalization requirements significantly increased the after-tax costs of developing citrus groves and almond orchards and effectively terminated the tax shelter advantages of grove development. The impact of the change in tax law on California citrus and almond acreage, production, and prices as well as the production and prices of alternative tax shelter orchard crops were evaluated by Carman. In addition, the impact of capitalization requirements on California orchard prices were analyzed.

The economic model of orchard and grove supply response has components to explain annual new plantings, changes in acreage, production, and price for each of the crops. Annual new plantings and acreage changes are related to profit expectations which are based on prices, production costs, labor availability, income tax laws, and total crop acreage. Farm level prices are a function of crop production, production of competing crops, population, consumer income, and tastes and preferences. Total production is the product of bearing acreage and average yields. When joined together, these components form a simulation model which is used to estimate annual acreage, production, and prices from 1970 to 1985.

The 1969 and 1979 legislation had an immediate impact on new plantings and total acreage of California citrus and almonds. Decreased plantings are reflected in changing bearing acreage, production, and prices over time. The estimated immediate impact of tax reform was to reduce total annual acreage of navel oranges 3,068 acres; valencia oranges, 3,174 acres; lemons, 2,869 acres; and almonds, 934 acres. Alternative tax shelter orchard crops—walnuts, avocados, and grapes—increased with tax reform. Grape acreage, in particular, increased by 22,699 acres.

A summary of the simulated percentage impact of tax reform on the seven crops studied for 3 years in the study period is presented in table 2. The projected values for 1985 are based on several assumptions. Population increases are the Census Bureau's series II projection, and 1979 values for per capita income, prices, and costs are used. Production of substitute crops is the 5-year average 1975-1979. Yields are assumed to trend upward or are the average for 1960-78.

The immediate impact of tax reform on navel orange acreage, production, and price was modest. The impact increases through time, however, with a 1978 estimated decrease in bearing acreage and production of 7 percent resulting in product prices 3.8 percent higher than without reform. Valencia orange and lemon acreage were over 10 percent lower in 1973 with reform than without. This difference increases through time with projected 1985 production over 27 percent below what it would have been without reform. This acreage impact is the largest for the seven crops studied. The percentage impact on valencia orange prices is small and probably understated. The projected price increase does not include the impact of decreased production in other orange-producing States.

The simulated impact of tax reform on almonds is small and is projected to increase very little through time. The percentage impact on 1978 and 1985 production and prices is less than 1 percent. There is a greater simulated impact for walnuts, and there is also evidence of increased cyclical production and price behavior with tax reform. Total acreage of walnuts increased by 9 percent in 1978 and was then projected to decrease. As total acreage decreases, bearing acreage increases with

changes in the relative proportions of bearing and nonbearing acreage.

Tax reform had a very small simulated impact on avocados through 1978 with the projection showing no impact by 1985. Model results show that the hypothesized shift in investor interest to avocados was very small.

There was a significant shift to vineyard development associated with tax reform for citrus and almonds. Simulation results indicate that tax reform was responsible for an increase in total grape acreage of 9.95 percent in 1973, increasing to over 14 percent in 1978 and 1985 (table 2). Bearing acreage and production initially decreased in response to tax reform and then increased to 10.3 percent over the level without reform with a further 2.6-percent increase through 1985. The estimated 1978 decrease in grape prices due to increased acreage is 2.37 percent.

The estimated initial and 1979 impact of tax reform on real orchard prices is shown in table 3. Increased acreage and lower prices for walnuts and grapes as a result of tax reform results in decreases in orchard values. The estimated impact of tax reform on walnut acreage is primarily responsible for the $331 and $319 per-acre decrease in Sacramento and San Joaquin Valley walnut orchard values, respectively.

Increased product prices due to tax reform helped offset the initial decrease in values for almond orchards and citrus groves. Increased productivity and decreased grape prices led to an additional decrease in estimated vineyard values due to tax reform.

Requiring capitalization of citrus grove and almond orchard development costs was associated with an immediate decrease in grove and orchard values. The per acre decrease in values was almost three times as large for navel oranges and lemons as it was for almonds. It is hypothesized that the decrease in values was due to publicity associated with tax reform. There was extensive negative publicity about the economic outlook for citrus. Almond capitalization requirements were enacted a year later with very little publicity.

Table 2—Simulated percentage impact of tax reform on total acreage, bearing acreage, and production, and prices of selected California perennial crops, 1973, 1978, and projected 1985

Crop and years	Total acreage	Bearing acreage and production	Price
	Percent difference[1]		
Navel oranges:			
1973	-2.78	- 3.75	3.85
1978	-5.12	- 7.06	3.78
1985	-7.54	-10.46	7.89
Valencia oranges:			
1973	-10.10	-11.69	3.34
1978	-17.39	-21.15	3.25
1985	-19.03	-27.18	4.92
Lemons:			
1973	-11.70	-7.27	6.90
1978	-21.36	-18.90	14.96
1985	-21.04	-27.42	31.81
Almonds:			
1973	-.96	1.41	-.33
1978	-1.96	.74	-.21
1985	-2.11	-.99	.49
Walnuts:			
1973	2.29	-3.61	4.51
1978	9.00	.88	-.41
1985	1.95	6.12	-2.72
Avocados:			
1973	.43	.88	-.48
1978	-.43	.49	-.56
1985	.14	0	0
Grapes:			
1973	9.95	-5.69	2.01
1978	14.68	10.30	-2.37
1985	14.32	12.92	-3.40

[1]All percentage calculations use the without tax reform simulated results as the base.

Source: Carman (1980, pp. 27-59).

The estimated 1979 impact of tax reform on established tree and vine orchard values was negative for each of the crops considered. This negative impact will likely persist for several more years, even given the cyclical nature of perennial crop supply response.

Cash Accounting

Probably no issue in the reporting of farm income has received as much attention as has the use of cash accounting by farm operators. As noted earlier, cash accounting rules permit taxpayers to manipulate the time that income is reported or that deductions are taken.

Volding and Boehlje simulated the impact of different accounting procedures on six different types of farms in two different size categories as measured by farm receipts. The objective of the analysis was to maximize the discounted after-tax income over a 5-year period through choice of an accounting system. Three accounting systems were compared for the various farm situations: the accrual system, the cash system with maximum cash adjustments, and the cash system with optimal cash adjustments. Cash adjustments include expense items that are prepaid as well as income items that are postponed. With the accrual system, there is less opportunity to adjust taxable income through prepaid expenses or delayed sales. If the cash system with maximum adjustments is used, all possible sales are delayed and expenses prepaid in the earliest year feasible. Thus, taxable income may be zero or very low in some years because of these additional cash deductions. With the optimal adjustment cash accounting system, deductions and income are manipulated to equate annual marginal tax rates adjusted for the discount rate and future earnings on tax savings during the 5-year planning horizon.

Table 3—Estimated impact of income tax reform on California orchard prices

Crop	Estimated impact on orchard price	
	Initial[1]	1979[2]
	Dollars per acre	
Walnuts:		
Sacramento Valley	146	-185
San Joaquin Valley	270	-49
Almonds:		
Sacramento Valley	-253	-251
San Joaquin Valley	-169	-167
Lemons	-705	-430
Navel oranges	-670	-621
Grapes	-135	-182

[1]The initial impact is the coefficient on the tax reform variable in table 2. All values are in real terms, 1967 = 100. [2]The 1979 calculations are based on the simulated impact of tax reform on acreage, production, and prices as calculated by Carman (1980, pp. 27-61).

The model was used to analyze representative farms in census class II ($20,000 to $39,999 in sales) and class IA ($100,000 or more in sales). Enterprise types analyzed included cash grain, hog and beef feeding, dairy, beef cow-calf, beef feeding, and hog feeding farms. Each farm size within each enterprise class was analyzed giving a total of 12 sets of data. Initial data on asset and liability structure, farm income, and taxable income and expense items for each of the 12 representative farms were obtained from Iowa Farm Business Association records for 1974. The data were State averages for each farm class and enterprise type. Financial consequences evaluated included taxable income and tax liability, after-tax income, consumption, change in net worth, and growth rate.[31]

Table 4 summarizes 5-year total dollar values for each farm size class and enterprise type for the business analysis variables using the three different accounting systems. For example, the cash method with optimum adjustment allows a class II grain farm to generate $14,311 more discounted after-tax income over a 5-year period than if the

[31]The results produced thus are indicative of the effect of the different accounting systems in a year when grain farmers were relatively prosperous, 1974. The magnitude might well be different in less prosperous years, but the trends should be in the same direction.

Table 4—Five-year business analysis totals for different accounting systems for various sizes and enterprise types

Business analyses variable	Dairy		Grain		Hog and beef feeding		Beef cow-calf		Hog feeding		Beef feeding	
	IA[1]	II[2]	IA	II	IA	II	IA	II	IA	II	IA	II
						Dollars						
After-tax income:[3]												
Accrual	172,783	35,294	288,534	64,360	125,378	48,479	100,621	—	243,860	88,030	90,464	—
Cash with maximum adjustments	211,922	37,388	335,748	72,549	150,043	52,536	112,956	—	319,384	100,301	101,420	—
Cash with optimum adjustments	245,513	43,169	436,784	78,671	183,909	59,513	127,294	—	332,193	111,141	123,992	—
Consumption:[3]												
Accrual	77,495	31,671	101,410	41,350	61,695	36,065	42,333	—	101,185	49,208	50,059	—
Cash with maximum adjustments	90,541	32,368	131,815	44,088	69,916	37,417	57,555	—	126,358	53,337	53,710	—
Cash with optimum adjustments	100,613	34,293	165,480	46,128	81,204	39,743	62,334	—	130,627	56,946	61,233	—
Change in net worth:												
Accrual	123,398	2,670	185,505	29,916	82,239	26,040	60,933	—	185,157	50,312	52,090	—
Cash with maximum adjustments	154,191	6,221	259,135	36,610	101,894	19,187	70,426	—	245,001	60,338	60,579	—
Cash with optimum adjustments	183,551	11,423	348,278	43,237	132,836	25,542	83,850		254,928	70,373	80,980	—

—= Values for these farms could not be determined because, using the farm record data, earned income was negative for all three accounting methods.
[1]$100,000 or more in annual sales.
[2]$20,000 to $39,999 in annual sales.
[3]The values in the table are discounted using a 9-percent discount rate.

accrual method were used. The optimum adjustment method has a $6,122 advantage over the maximum adjustment variation for after-tax income. Consumption (discounted) and change in net worth over a 5-year period can be increased by $4,778 and $13,320, respectively, if the class II grain farm uses the cash method with optimum yearly additional cash adjustments rather than the accrual method.

In contrast, the advantage of cash accounting with optimal adjustments over the accrual method is $192,259 in discounted after-tax income for class IA grain farms (table 4). The cash method with optimum adjustments has a $101,036 advantage over the maximum adjustments variation when 5-year total after-tax income is considered. A difference of $162,773 in net worth accumulation and significantly higher consumption are also attributed to the cash optimum adjustments system compared with accrual accounting for the class IA grain farm.

Analysis of the data in table 4 indicates that for all farm sizes and types, the cash method of accounting with optimum adjustments is preferable to the other two accounting systems. Over the 5 years, this method of accounting produces more total dollars for each of the variables, after-tax income, consumption, and change in net worth. It also results in a more rapid growth rate.

Table 5 summarizes the relative advantage of the cash accounting system with optimal adjustments compared with accrual accounting for all farm sizes and enterprise types. Table 5 indicates that larger farms in each enterprise type receive a higher payoff from the cash method with optimum adjustments compared to their smaller counterparts when after-tax income is considered. One major reason for this is that larger farms have more earned income and consequently higher marginal tax rates. One dollar in additional cash adjustments saves more income from taxes when the marginal tax rate is higher. A similar conclusion can be drawn about farm size and the advantage of the cash method with optimum adjustments when the remaining business variables—consumption, change in net worth, and growth rate—are studied since these variables are directly related to after-tax income.[32]

[32]One exception is the hog feeding enterprise type. For this enterprise type, the smaller farms have a relative advantage in net worth and growth rate. This occurs because of the large impact of small marginal increases in income above consumption on relative net worth accumulation and growth rate.

Table 5—Ratios of business analysis variables under cash accounting with optimum adjustments to business analysis variables under accrual accounting

Farm type	Business analysis variable							
	After-tax income		Consumption		Change in net worth		Growth rate	
	II[1]	IA[2]	II	IA	II	IA	II	IA
Grain farm	1.222	1.786	1.116	2.632	1.445	1.877	1.479	1.750
Hog- and beef-feeding farm	1.228	1.467	1.102	1.316	1.592	1.615	2.562	1.583
Dairy farm	1.223	1.381	1.083	1.303	2.443	1.487	2.500	1.439
Beef cow-calf farm	—	1.265	—	1.166	—	1.376	—	1.356
Beef-feeding farm	—	1.371	—	1.223	—	1.555	—	1.500
Hog-feeding farm	1.263	1.362	1.157	1.291	1.399	1.377	1.330	1.350

— = Ratios for Class II farms for these enterprise types can not be determined because earned income was negative.
[1]$100,000 or more in annual sales.
[2]$20,000 to $39,999 in annual sales.

The enterprise type which can obtain the most advantage from cash accounting can be determined from table 5 by looking at the column for each farm size and for each business variable. For after-tax income, large grain farms (class IA) make more advantageous use of the cash method with optimum adjustments than do other large enterprise types. The class IA enterprise types listed in order of most advantageous to least advantageous use of cash-optimal adjustment accounting when after-tax income is considered are: (1) grain farm, (2) hog- and beef-feeding farm, (3) beef-feeding farm, (4) dairy farm, (5) hog-feeding farm, and (6) beef cow-calf farm.

A major explanation for this order is the difference in the amount of additional cash adjustments that can be manipulated. Grain farms have the potential for much higher cash adjustments compared with other type farms because in a typical operation, a large proportion of inputs (such as seed, fertilizer, and chemicals) are purchased off the farm and can be prepaid, and all production of grain can be held from sale. In contrast, while the beef cow-calf farm can also hold all of its production from sale, it has a much lower net income than does the grain farm even though both kinds of farms are within the same gross sales size classification. A similar conclusion can be drawn for class IA farms when the remaining business variables—consumption, change in net worth, and growth rate—are evaluated.

The same general order of enterprise types exists for class II farms when all business variables are considered. However, the differences between enterprise types are not as great as with class IA farms because the taxable income is lower for class II farms.

Other studies have shown similar results. Bryant demonstrated that use of the cash accounting system on dairy farms resulted in a substantial increase in firm growth over time. The exploitation of the cash accounting rules in the cattle feeding industry during the late sixties and early seventies are well documented by Meisner and Rhodes. Their work suggests that the tax advantages of the cash accounting system combined with the limited partnership investment vehicle was a major factor in the development of the Southern Plains cattle feeding industry during this period.

A study by Burt of the benefits of a cash accounting system for farms in the Pacific Northwest suggests that cash accounting generates few benefits compared with the accrual accounting system in terms of accumulated net worth over a 10-year planning horizon. The methodology, however, limited the amount of income deferral so that the cash accounting systems in that study were operated in a similar fashion to an accrual system. A later study, now being conducted by Burt and Wirth using the same model, will report findings on different assumptions.

Cash Accounting and Capital Gain

The cash accounting rules allow farmers substantial flexibility in managing their tax liabilities and can be used to increase after-tax returns and wealth accumulation over time. Combining these rules with the special tax treatment of capital gains may be particularly attractive in the case of breeding herds. Duffy and Bitney considered the application of cash accounting and capital gain provisions to two kinds of swine breeding operations. One was a farrow-to-finish operation, and the other was a feeder pig enterprise. In each operation, results were calculated for a strategy using all gilts for pig production, and then for a strategy in which sows were kept for four litters. Under the all-gilt strategy a much larger proportion of total sales will qualify as long-term capital gain.

Costs and returns from one farrowing of 32 sows under the four-litter strategy results in $927.77 more before-tax profit than the all-gilt strategy. When income taxes are considered, the after-tax profits from the two breeding herd replacement strategies are exactly equal at a tax rate of 39 percent. Below this point, the four-litter strategy produces more after-tax profit. For tax rates above 39 percent, the all-gilt strategy produces more after-tax profit. The tax rates used are not marginal tax rates. They are average rates—which apply to all of the taxable income from the hog enterprise. In the feeder pig production enterprise, the profits (both before-tax and after-tax) were higher with the all-

Table 6—Feeder pig production enterprise, costs and returns

Costs and returns	All gilt	Four litters
	Dollars	
Gross sales:		
Ordinary income	7,427.44	9,191.73
Capital gains	4,272.91	1,374.30
Total	11,745.35	10,566.03
Tax deductible expenses:		
Feed	5,010.95	4,077.03
Non-feed	2,467.21	2,467.21
Total	7,478.16	6,544.24
Before-tax profit	4,267.19	4,021.79
Taxable income	2,130.74	3,334.64
Net after-tax profit at alternative tax rates:		
20 percent	3,841.04	3,354.86
30 percent	3,627.97	3,021.40
40 percent	3,414.89	2,687.93
50 percent	3,201.82	2,354.47

gilt strategy, compared with the four-litter strategy (table 6).

The comparisons in table 7 reflect the costs and returns resulting from one farrowing of 32 females under each breeding herd replacement strategy.

The same comparisons were made for annual production. The net after-tax profits are presented in table 8, using four market hog price levels. At $40/cwt. market hogs, the four-litter strategy yields $1,071 more after-tax profit than the all-gilt strategy. The all-gilt strategy is $888 more profitable at the $50-price level, and $2,304 more profitable at the $60-price level. These differences represent a relatively small percentage of the after-tax profit.

A similar comparison for the full-time feeder pig production yields quite different results. Table 9 shows that after-tax profits for the all-gilt breeding herd replacement strategy are greater over the entire range of feeder pig price levels. These differences in after-tax profits between the all-gilt and the four-litter strategies are significant, both absolutely and in proportion to the total. The all-gilt strategy produces nearly twice as much after-tax profit as the four-litter system at a $30-per-head feeder pig price.

The all-gilt breeding herd appears to offer little advantage to the farrow-to-finish hog producer in terms of after-tax profits. The average income tax rate must be more than 39 percent for the all-gilt strategy to be more profitable than a four-litter strategy. Also, the after-tax profit advantages at tax rates above 39 percent are not large, particularly when we consider the nonquantifiable factors, and the 50-percent maximum tax rate on earned income.

The situation is quite different for the feeder pig producer, however. The all-gilt strategy produces more after-tax profit, regardless of income tax

Table 7—Farrow-to-finish enterprise, costs and returns

Costs and returns	All gilt	Four litters
	Dollars	
Gross sales:		
Ordinary income	17,226.15	21,974.40
Capital gains	4,272.91	1,374.30
Total	21,499.06	23,348.70
Tax deductible expenses:		
Feed	11,272.63	12,193.30
Non-feed	4,638.80	4,638.80
Total	15,911.43	16,832.10
Before-tax profit	5,587.63	6,516.60
Taxable income	3,451.18	5,829.45
Net after-tax profit at alternative tax rates:		
20 percent	4,897.40	5,350.71
30 percent	4,552.48	4,767.77
40 percent	4,207.16	4,184.82
50 percent	3,862.04	3,601.88

Table 8—Annual after-tax profits resulting from a full-time farrow-to-finish hog enterprise (192 litters per year)

Market hog price	Net after-tax profit or loss	
	All gilt	Four litters
	Dollars	
$30/cwt.	-5,888.28	-3,689.28
$40/cwt.	16,854.13	17,837.82
$50/cwt.	37,867.20	37,000.61
$60/cwt.	54,517.95	52,231.77

rate. But, the all-gilt program requires large numbers of replacement breeding stock which may present a problem for the producer who sells pigs at 40 pounds. If replacement gilts are bought, the capital gains advantage associated with raised breeding stock is lost. The producer will need to select female pigs at 40 pounds and feed them to near-market weight before they enter the breeding herd which will require facilities and labor, and may be difficult to incorporate into a cross-breeding system.

A study by Reid, Musser, and Martin of the differential tax treatment of ordinary income compared with capital gain on the optimal enterprise organization and management practices for crop-hog farms in Georgia suggests similar results to that of Duffy and Bitney. The optimal farm organization was compared on a before-tax and after-tax basis. Inclusion of income taxes in the analysis resulted in the hog enterprise being a more dominant part of the farm operation, particularly for larger farms,

Table 9—Annual after-tax profits resulting from a full-time feeder pig production enterprise (298 litters per year)

40 lb. feeder pig price per head	Net after-tax profit or loss	
	All gilt	Four litters
	Dollars	
$20	-13,115.05	-10,085.94
$30	15,100.78	9,248.72
$40	33,001.77	26,778.37
$50	52,580.14	41,172.12

along with heavier culling of sows and a larger proportion of gilts in the breeding herd.

In another analysis, Musser, Martin, and Saunders found an incentive for crop farms to move toward production of animals such as hogs when capital gains tax provisions were incorporated in the analysis. Overall returns were increased by deducting animal development costs against the crop income and then reporting a significant proportion of income from the animals as long-term capital gains.

Bryant studied the effect of various Federal tax provisions on a dairy farm. He simulated changes in tax liability if each of four tax provisions were eliminated under two circumstances. The four tax changes were 1) elimination of cash accounting, 2) removal of capital gains on livestock, 3) repeal of accelerated depreciation, and 4) elimination of the investment tax credit.[33] He simulated the differences in net worth over a 20-year period assuming growth and taking into account taxes that could be paid on liquidation of the investment.

The results of this simulation are summarized in table 10. By use of cash accounting and livestock profits treated as capital gain, the tax bill over the 20-year period was cut in half compared to accrual accounting and reporting livestock sales as ordinary income. The increase in net worth by using these provisions was 55 percent greater.

The differences are even greater if the taxes on liquidation can be avoided. Bryant assumed a disposition of property through sale. If, however, the property were retained until death, it would take a basis equal to the value at death, and the recapture of investment credit and depreciation would not be triggered. Most if not all of the taxes on liquidation would be avoided, and the net worths would be those reported as if liquidation did not occur.

Capital Gains and Land Prices

The special tax treatment of capital gains, the interest deduction, and the computation of the basis

[33]At the time of the study, investment credit was 7 percent of the purchase price of qualified property; it has since been increased to 10 percent.

Table 10—Tax liabilities and net worths under various tax law assumptions, 20-year growth period

Tax assumptions	Net worth after liquidation	Net worth after liquidation as a percent of the net worth produced by Assumption 1	Taxes on liquidation	Net worth before liquidation	Net worth before liquidation as a percent of net worth after liquidation	Cumulated annual taxes over the 20-year period
	Dollars	*Percent*	*— — — Dollars — — —*		*Percent*	*Dollars*
1. Accrual accounting with livestock sales reported as ordinary income	157,661	100	33,392	191,053	121	90,836
2. Accrual accounting with livestock sales reported as long-term capital gain	165,444	105	28,804	194,248	123	88,624
3. Cash accounting with livestock sales reported as ordinary income	204,721	130	58,565	263,289	167	56,355
4. Cash accounting with livestock sales reported as long-term capital gain	245,114	155	39,932	285,046	181	44,302
5. Assumption 4 with the use of accelerated depreciation and a 7-percent investment credit	267,500	170	59,733	327,233	208	15,568

in real property appear to affect the rate of wealth accumulation, the ownership patterns, and prices of farm real estate.

The effect of capital gains on wealth accumulation was evaluated by Boehlje using a dynamic business simulation model. Two different sets of rates of return and price appreciation were specified for analysis. The first set included a 4-percent cash rate of return on real estate and an 8-percent rate of price appreciation; the second set included an 8-percent cash return and a 4-percent appreciation rate. The total return was 12 percent before taxes on both cases, the only difference was in the mix between current cash income taxed as ordinary income and appreciation taxed as capital gain. With the lower cash returns, current consumption also was reduced because consumption was specified as a function of cash income.

The implications of these different sets of rates of return and appreciation for different sized Iowa farms is illustrated in table 11. For the $1 million Iowa farm, the after-tax ending equity was 16.5 percent higher with the high appreciation rate/low cash return rate assumption. For the $3 million farm, the after-tax ending equity is 27.4 percent higher with the higher appreciation rate.

Thus, the preferred tax treatment of capital gains results in more wealth accumulation when a large portion of the total return is appreciation rather than current cash income. Furthermore, in this circumstance, the benefits of the differential tax treatment for capital gain were larger for the larger farm. Because the larger farm has a higher tax bracket, there is a larger tax savings from deferring the payment of taxes when a larger proportion of the total rate of wealth accumulation accrues in the form of capital gain.

Boehlje also evaluated the effect on land prices of the differential tax treatment for capital gains, compared with ordinary income, along with various other parameters such as leverage and holding period. His analysis procedure utilized a basic bid price model. The issue of whether tax rates and financing terms affect land prices has been discussed often in the literature. His model presumed that the financing terms used to acquire real estate

Table 11—Financial consequences over a 10-year period of different rates of current return and appreciation for three different sized Iowa farms

Financial consequences	$1 million farm		$2 million farm		$3 million farm	
	8-percent cash return; 4-percent appreciation rate	4-percent cash return; 8-percent appreciation rate	8-percent cash return; 4-percent appreciation rate	4-percent cash return; 8-percent appreciation rate	8-percent cash return; 4-percent appreciation rate	4-percent cash return; 8-percent appreciation rate
	Dollars					
Increase in equity	1,084,040	1,527,642	1,977,146	2,930,045	2,844,235	4,314,247
Ending equity	2,066,910	2,510,512	3,942,888	4,895,787	5,504,416	7,262,860
Accumulated total taxes	454,576	242,366	1,056,371	569,197	1,690,223	1,922,788
Average annual consumption	23,975	19,051	34,696	27,426	43,400	34,276
Contingent capital gains tax	230,570	394,110	530,031	841,729	807,003	1,276,445
Net after-tax equity accumulation	833,470	1,133,532	1,447,115	2,088,316	2,037,232	3,037,802
	Percent					
Annual growth rate	7.72	9.83	7.21	9.55	6.99	9.43

are unique to that purchase (an installment land contract for example) and are available only as part of the land purchase transaction. Since the financing terms may have a value (because, for example, of a low interest rate), a buyer will adjust the bid price to reflect the financing terms. Thus, the bid prices reported in table 12 are comprised of a component paid for the real estate itself and a component paid for the financing terms.

Assuming the 37-percent marginal tax bracket, 50-percent leverage, and a 20-year holding period, the bid price for real estate would be $1,879 per acre if the return was partitioned into 4-percent income and 8-percent appreciation; $1,681 if the return is partitioned as 6-percent current income and 6-percent appreciation; and $1,530 if the income is partitioned as 8-percent current income and 4-percent appreciation. For all sets of parameters, the bid price declines as the current cash income increases and appreciation decreases. Furthermore, this decline is much more dramatic for the higher marginal tax rates compared to the lower rates. For example, when the appreciation rate is 8-percent but the current return is only 4-percent, a taxpayer in the 16-percent marginal bracket who employs 50-percent debt and a 30-year planning horizon would find that the bid price was $2,168 per acre. If the appreciation and current return rates are merely reversed to 4-percent appreciation and 8-percent current return, the bid price declines to $1,969 per acre. If, however, a 50-percent marginal tax bracket is assumed, the bid price rises to $2,418 per acre when there is 8-percent appreciation and 4-percent current return. When these rates are reversed to 4-percent appreciation and 8-percent current return, the bid price falls much more dramatically than for the 16-percent tax bracket to $1,683 per acre. Bid prices decline as the mix of current return and appreciation changes, and the major reason for the decline is the tax treatment afforded the two sources of return. Current income is taxed when it is earned on an annual basis. With capital gains, only 40 percent of the appreciation is taxed, and the tax is deferred until the time of sale. Consequently, a higher price can be paid for real estate that yields a higher proportion of its return in the form of capital gain, and the tax benefits of capital gain are larger for people in higher marginal tax brackets. These findings are consistent with Feldstein's and Baker's theoretical analyses.

In general, the difference in bid price between the high appreciation/low cash return situation and the low appreciation/high cash return situation increases as both the holding period and the lever-

age ratios increase. This is particularly true at the higher marginal tax brackets. The reason for the larger difference in bid prices with a longer holding period is again related to tax provisions. The longer holding period delays the taxation of capital gains; thus, the present value of that tax obligation is reduced resulting in a higher after-tax value for the asset. Higher leverage also has a tax impact. It increases the amount of tax deductible interest and thus, lowers the effective tax bracket at which future returns are taxed. Even though higher bid prices result if a larger proportion of the return accrues in the form of appreciation or capital gain, the difference between the cash flow produced by the property and the costs necessary to carry it are greater with the higher rate of appreciation and low rate of current cash return.

The marginal tax rate has an interesting impact on the bid price. With 20-percent leverage, the bid price declines as the tax rate increases, assuming the holding period and return-appreciation parameters are held constant. In contrast, with a combination of high leverage and a low current return/high appreciation rate, the bid price goes up as the tax rate increases. However, if the current return is high and the appreciation rate low (again assuming high leverage), the bid price goes down or increases only slightly as the tax rate increases. Thus, if the earnings are taxed on a current basis as is the case with the higher current return/low appreciation rate assumption, a higher tax rate results in a lower after-tax income and lower bid price for land. If, on the other hand, the earnings accrue primarily as capital gains, and the purchase is highly leveraged, the tax benefits produced by the interest deduction plus the deferred taxation of capital gains allow a higher bid price as the tax rate increases.

Table 12—Bid price per acre assuming taxable sales[1]

	10-year holding period			20-year holding period			30-year holding period		
					Percent				
Rate of appreciation	8	6	4	8	6	4	8	6	4
Rate of current return	4	6	8	4	6	8	4	6	8
					Dollars				
16-percent marginal tax bracket:									
20-percent debt	1,310	1,282	1,252	1,854	1,799	1,743	2,128	2,023	1,945
50-percent debt	1,320	1,291	1,259	1,880	1,819	1,761	2,168	2,053	1,969
80-percent debt	1,329	1,299	1,267	1,905	1,850	1,779	2,208	2,085	1,994
37-percent marginal tax bracket:									
20-percent debt	1,159	1,074	1,001	1,671	1,519	1,402	1,932	1,706	1,559
50-percent debt	1,235	1,137	1,053	1,879	1,681	1,530	2,278	1,956	1,744
80-percent debt	1,317	1,205	1,109	2,122	1,868	1,663	2,706	2,258	1,962
50-percent marginal tax bracket:									
20-percent debt	1,096	986	891	1,594	1,396	1,243	1,862	1,572	1,383
50-percent debt	1,208	1,077	963	1,917	1,639	1,426	2,418	1,946	1,653
80-percent debt	1,336	1,180	1,045	2,320	1,939	1,647	3,188	2,475	2,006

[1]An interest rate of 11.5 percent on borrowed funds was assumed in all cases.

Evaluation of leverage found that increased leverage has a relatively small impact at low tax rates. As the tax rate increases, the impact of leverage becomes more significant. In higher tax brackets, the differences between the bid prices for high compared to low leverage are larger with high appreciation/low current return compared to low appreciation/high current return. These differences occur because of the larger value of the interest deductions with higher tax brackets.

Size Economies and Firm Growth

Various analysts have argued that the progressive structure of the income tax rates combined with depreciation allowances, interest deductions, and investment credit encourage the purchase of larger machinery and equipment and growth in farm size. Some have argued that tax provisions which encourage the purchase of capital items along with the cash accounting rules are major incentives for farmers to expand. Others have argued that taxes play a smaller role in expansion; that expansion to gain tax advantages alone is not rational behavior, and that economies of size and attempts to generate higher levels of income are the primary factors that influence the process of expansion and growth of the firm.

The empirical and numerical research in this area is clearly not definitive and is somewhat contradictory. A study (not yet in final form) by Musser suggests that current tax rules may in fact discourage farm growth. This study evaluated the economies of size in Midwest crop production with particular emphasis on machinery selection and optimal machinery size for different acreage levels. The methodology used was to budget the cost of production for various representative size farms and machinery sets on a before- and after-tax basis. The analysis procedure assumed that, for tax purposes, all income was reported on an accrual basis, that nonfarm income increased with farm size, and that income trended upward over time to reflect inflation.

The results of this analysis indicate that although the technical economies-of-size curves decline over the range of acreages investigated (from 0 to 1,500 acres), the inclusion of taxes as a cost results in a more conventional U-shaped longrun average cost curve. The minimum of this longrun average cost curve occurs at approximately 200-300 acres. The inclusion of taxes in the analysis did not result in major changes in the optimal machinery complement or size for a given acreage. Analysis of the impact of accelerated depreciation indicated that the benefits of this mechanism as a means of stimulating investment depend upon the size of the marginal income tax bracket—if the amount of depreciation is such as to lower the marginal bracket, the benefits will be similarly reduced.

In essence, Musser's work suggests that the underlying technical economies of size in crop production decline up to 1,500 acres on a before-tax basis, but the inclusion of taxes as a cost results in the curve declining up to 200-300 acres and then rising after that because the future income generated is taxed in higher marginal tax brackets. As noted above, Musser's analysis assumes that the farmer cannot mismatch income and expenses through use of the cash accounting system or cannot continually expand the farm using interest deductions to reduce current taxable income. As a consequence, in our progressive income tax system, the high farm and nonfarm income associated with larger farm sizes produced higher after-tax costs on larger farms.

A different conclusion could possibly be based on the Musser work. The diseconomies associated with farms over 200-300 acres are simply a tax phenomena. Since taxes can be reduced through the investment credit, depreciation allowances, and interest deductions, there may be an incentive to grow to exploit the underlying technical economies of size that exist. In essence, tax management is one way to offset the diseconomies of size, and various methods of tax management including the use of cash accounting techniques combined with investment credit, depreciation allowances, and interest deductions associated with the purchase of capital items enables farmers to lower their marginal tax brackets in future years and thus exploit the underlying technical size economies.

Musser's key assumption—that marginal tax brackets increase with farm size—is not consistent with several empirical studies. Baker found in his survey of Indiana farmers who reported data from

tax returns filed in 1978 and 1979 that the average effective tax rate did not increase with increases in farm size as measured by gross receipts. His results show that the use of various tax credits by farmers with more gross receipts reduced their tax liability, thus offsetting, in large part, the progressive nature of the income tax rate structure. Thus, Baker's survey results suggest that larger farmers are not necessarily in higher tax brackets after credits are taken into account. Sisson found similar results using data from a sample of tax returns filed in the sixties.

Furthermore, an empirical study completed by Sonka and Batte, based on records from Illinois farmers who were members of the Illinois Farm Management Association, indicates that although the inclusion of income tax liabilities resulted in a small increase in production costs, the shape of the production cost curve was not greatly affected. They report that, assuming no nonfarm income, scale or size economies were slightly reduced when taxes were included in the analysis for corn, soybean, wheat, and hog enterprises. When $20,000 of nonfarm income was included in the analysis, the tax liabilities for farms of all sizes increased, but tax liabilities declined with increases in gross income. This decline occurred because when nonfarm income was not available, there were excess tax credits that could not be utilized to generate tax savings. With the inclusion of nonfarm income, these tax credits were used to shelter nonfarm income from taxation, thus reducing the total tax burden and resulting in slightly larger cost reductions or size economies with increased farm size.

Edwards and Boehlje provide further evidence of the impact of taxes on optimal machinery selection; they conclude that "consideration of income tax effects did not significantly affect the size of the least-cost machinery sets, but did reduce the estimated variability of total costs from year to year." By reducing variability, the tax provisions may encourage firm growth.

Thus, the empirical and numerical evidence of the impact of tax provisions on size economies and incentives for growth are conflicting and contradictory. Although some work does suggest that the progressive structure of the income tax rates might result in a U-shaped longrun average cost curve, this work does not recognize the potential for farmers to use various tax management techniques to lower future tax liabilities and effective tax rates. If one of the tax management strategies used to keep future marginal tax brackets low is to purchase additional land, machinery, and equipment to obtain additional credits and deductions, then it might be argued that the tax provisions encourage farm growth. However, as to size economies, the conflicting empirical evidence suggests that income taxes may be relatively neutral in their effect—they neither magnify the technical economies of size that exist in agriculture, nor do they offset the size economies and force the cost curve to increase with increases in farm size. However, the tax incentives to growth still remain, with or without their influence on the cost curves.

Estate Tax Provisions

Estate taxes are perceived by farmers to represent an inordinate tax burden which will destroy the family farm because the heirs must frequently sell part of the farm to pay the taxes. Boehlje undertook to quantify the outflow of funds to pay estate taxes and to defray estate settlement and liquidation costs, and to determine the incentives provided by the Federal estate tax laws for farmers with different characteristics to change their land ownership status (buy, sell, transfer, or lease).

To accomplish these objectives, Boehlje selected illustrative farms with different size, asset composition, tenure, financial structure, and other characteristics and evaluated them with a dynamic estate and business planning simulator. The analysis emphasized the impact of current tax provisions as to credits, exemptions, deductions, and tax rates along with specific provisions such as special-use valuation and installment payment of tax. Implications of changes in estate tax policy were also analyzed.

The results indicate that the absolute value of the tax savings from using a combination of special-use valuation and installment payment of tax are generally largest for the illustrative farms with the largest net worth; these are also the farms that have the largest relative and absolute tax burden without the use of these provisions. For these larger farms, the special-use valuation and installment pay-

ment of tax provisions can dramatically increase the proportion of the parents' estates transferred to the heirs. In contrast, these special tax provisions do not have as much absolute benefit for the smaller illustrative farms.

The benefits from special-use valuation and installment payment of tax are not additive; that is, the tax savings from qualifying for both provisions do not equal the summation of savings from qualifying for each provision separately. For the smaller estates, the benefits from both provisions total less than each individually. This is to be expected because the size of the benefits from installment payment of tax depend upon the value of the estate, and because use valuation reduces the value of the estate, so the benefits from installment payment would also be reduced. However, for the larger farms, the tax benefits of the combination of special-use valuation and installment payment of tax are larger than the sum of the individual provisions. This occurs because special-use valuation reduces the size of the estate, thus increasing the proportion of the total that can qualify for deferral under the installment payment option at 4-percent interest. The result in these cases is a larger tax savings from installment payment of tax when special-use valuation is used.

Tax savings from special-use valuation are not proportional to estate size. The percentage of tax reductions from this provision are substantially lower if the estate is sufficiently large to exceed the $500,000 maximum allowable reduction in estate valuation from special-use valuation. Thus, the tax savings from a special-use valuation increase in absolute magnitude but decrease as a proportion of taxes due as estate size increases. For example, the tax savings total $147,204 for a typical $1-million Iowa farm and increase to $243,824 for a $3-million farm; however, savings as a percent of taxes due drop from 79 percent for the $1-million farm to 31 percent for the $3-million farm.

Tax savings as a proportion of the total tax liability decline as estate size increases when use valuation is utilized because of the maximum $500,000 limit on the reduction in estate value using this provision. The absolute value of the tax savings from use value continues to increase with increasing estate size, because the higher tax brackets result in larger savings even though the $500,000 limit is reached. For smaller estates that can use the marital deduction and unified credit to fully offset estate taxes, special-use valuation will result in little estate tax savings and may increase income taxes at a subsequent sale, because the use value establishes the basis for the property. Thus, at a later sale the land would have a larger capital gain and capital gain tax if use valuation rather than fair market valuation is used to value the property at death.

Furthermore, the tax savings from special-use valuation also are a function of the relative proportion of land in the estate and the quality of the land. The tax savings (percent reduction in taxes) are larger for the illustrative farms where land accounts for a larger proportion of the estate. In addition, higher valued land appears to receive a larger discount from using special-use valuation and thus results in more tax savings compared with lower valued land.

The relative and absolute tax savings from special-use valuation are substantially larger when the farm includes more assets and more debt but the same net worth. This larger savings occurs because the leveraged farm includes more land assets which qualify for special-use valuation. The total tax savings from both installment payments of tax and special-use valuation are also larger in relative and absolute terms for the farm with more leverage and more assets.

In the case of a tenant, the benefits of use valuation are not as large as for an owner-operator farming the same acreage. In fact, farmers who rent all of their land receive no benefit from special-use valuation irrespective of estate size. Thus, this provision provides larger benefits to owner-operators than to tenants.

The benefits of use valuation for different illustrative farms (assuming no qualification for installment payment of tax) are summarized on a per acre basis in table 13. Since the benefits of use valuation accrue in the future (at death), their current value can only be evaluated by discounting the benefits at an appropriate rate to reflect the time value of money.

Because of the pre-death requirement that qualified property must be used for farming or other closely held business purposes for at least 5 of the last 8 years preceding death, one could not obtain the benefits of a current purchase of farmland for at least 5 years. If a purchase of qualified real property is made with expectation of death to occur in 5 years, the present value of the use valuation benefits ranges from $377 per acre for the Illinois farm, to $30 per acre for the Montana farm. The value of these tax benefits as a percentage of the fair market value of the land ranges from 9 to 15.2 percent.

If more years elapse between the purchase of the property and the date of death, the present value of the use valuation benefits declines. The benefit totals 2.7 to 4.8 percent of the current market value per acre if death is expected to occur 20 years following the purchase. These figures indicate the per acre price premium that could be paid for real property that would qualify for use valuation.

Thus, it can be expected that, with increasing age, eligible persons will be encouraged to move toward a greater investment in land, and less investment in nonland assets. Those with a longer life expec-

Table 13—Value of benefits from use valuation per acre of land without installment payment of tax

State	Unit	Fair market value per acre	Use value per acre	Present benefits per acre	Present value of benefits assuming death in:			
					5 years	10 years	15 years	20 years
Iowa, 320 acres								
Proportion of	Dollars	2,400	836	505	343	233	159	108
fair market value	Percent	100	35	21.0	14.3	9.7	6.6	4.5
Georgia, 580 acres								
Proportion of	Dollars	805	432	115	78	53	36	24
fair market value	Percent	100	54	14.3	9.7	6.6	4.5	3.0
Ohio, 256 acres								
Proportion of	Dollars	1,977	724	346	235	160	109	74
fair market value	Percent	100	37	17.5	11.8	8.1	5.5	3.7
Missouri, 360 acres								
Proportion of	Dollars	1,191	580	185	125	85	58	39
fair market value	Percent	100	49	15.5	10.5	7.1	4.9	3.3
Oklahoma, 960 acres								
Proportion of	Dollars	706	392	104	70	48	32	22
fair market value	Percent	100	55	14.7	9.9	6.8	4.5	3.1
Montana, 3,040 acres								
Proportion of	Dollars	333	212	43	30	20	14	9
fair market value	Percent	100	64	12.9	9.0	6.0	4.2	2.7
Washington, 1,280 acres								
Proportion of	Dollars	805	432	134	91	62	42	29
fair market value	Percent	100	54	16.6	11.3	7.7	5.2	3.6
Illinois, 400 acres								
Proportion of	Dollars	2,452	765	554	377	256	174	118
fair market value	Percent	100	31	22.5	15.4	10.4	7.1	4.8

tancy would pay a smaller premium for the benefits of use valuation as indicated in table 13. Thus, the use valuation legislation could enable older individuals to outbid younger farmers for a particular parcel of land, based on the value of the tax benefits each would receive. In general, the bid price for farm real estate would be expected to increase by the amount of the net present value of such tax benefits. This would result in an increased divergence between the value of the land and its cash income generating capacity.

Even though the taxes may be lower with use valuation, they may still be sufficiently large to require liquidation of real property if they must be paid in 9 months. In contrast, the option to pay taxes in installments allows the heirs to use the earnings from the farm and other sources of income during the 15-year period following death to pay the taxes. Since this option reduces the need for liquid funds to pay taxes, the installment payment of tax provision may have a greater effect on the continuity of the firm and help to maintain the size of the farm after the parent's death than special-use valuation. Estate taxes are a lien on the property, and they reduce its borrowing capacity from commercial lenders.

The tax savings from installment payment of tax remain approximately proportional with increases in farm size until the taxable estate reaches the size where the interest rate increases from 4 percent to the regular rate on unpaid tax; beyond this size the tax savings decline. The absolute value of the tax savings from installment payment of tax increases at a faster rate than the increase in estate size up to the $1 million taxable estate level, because the savings are proportional to the tax liability; the tax liability in turn increases more rapidly than estate size due to the progressive nature of the tax rate structure.

Tax Incentives to Incorporate

Changes in the tax treatment of corporate income have been made in recent years. Boehlje and Krause analyzed the effect of these changes (as well as other nontax factors) on the incentives for farmers to incorporate. This analysis was made before enactment of the 1981 tax act, and the act is not reflected in this discussion. The tax liabilities for various combinations of income and legal business entity alternatives were calculated. In addition, the 10-year growth potential of selected illustrative farms taxed as corporations and as sole proprietorships was evaluated using a business simulation model. The results indicate that current Federal tax laws (before the Economic Recovery Tax Act of 1981) as well as other economic factors encourage increased use of the corporation in the farm business, even for family farms. Incorporation can facilitate estate planning and transfer and reduce Federal income and social security tax costs when net income reaches and is expected to stay at or above $25,000-$30,000.

Federal income taxes have become more important in choosing a business organization in recent years for two key reasons. First, the net taxable income of most farming operations has been increasing due to inflation and increasing farm size. Secondly, corporate tax rates have been reduced twice during the past decade. Before the 1981 tax act, similar adjustments in the personal tax rates had not been made and as a result, sole proprietorships have faced "bracket creep." Thus, taxes as a proportion of real income (nominal income adjusted for inflation) declined for the corporation but increased for sole proprietorships with 1969 incomes between $10,000 and $300,000, which is equivalent in 1979 purchasing power to $19,800 to $594,000.

A corporation provides opportunities to reduce income taxes through the use of income sharing arrangements and multiple taxpaying entities. Through the proper specification of the level of salaries and timing of the payment of salaries or purchases and sales of inventories, the total income of the operation can be divided between the corporation and the farmer so as to minimize the total tax bill. This flexibility to allocate income between the corporation and the owner-manager is particularly appropriate for net income levels above $50,000 where tax as a percentage of income is at least 10 percentage points lower for the corporate-individual combination than for a sole proprietorship. The corporation also allows more flexibility in sharing income among family members. Use of a corporation can also provide significant tax savings over a partnership.

Long-term capital gains are not treated as favorably for corporations as they are for sole proprietorships or partnerships. For partnerships or sole proprietorships, only 40 percent of long-term gain is taxed at the individual's marginal tax rate; thus, the marginal tax rate on capital gains ranges from 5.6 to 28 percent. In a corporation, the full amount of long-term capital gains is taxed as ordinary income unless the tax rate on the gain exceeds 28 percent. They are then taxed separately at a 28-percent rate. Thus, farmers with a high proportion of farm sales that qualify for capital gains treatment such as cow-calf and certain swine herds may be less likely to incorporate than cash grain or fruit and vegetable farmers where income is all ordinary income. In addition, a corporation is not permitted to deduct personal and nonbusiness expenses or personal exemptions against other taxable income. Such deductions may be particularly important for individuals who have high personal deductions such as medical expenses but do not receive sufficent salaries and dividend income to offset the permitted deductions and exemptions.

Although a corporation can obtain more favorable tax rates on income, the firm is most interested in net income after all taxes. Corporations have a higher payroll tax for social security coverage than does a sole proprietorship. In addition, a corporation may be required to pay workers' compensation and unemployment insurance on owner-employees. Although the employer's contribution for social security taxes is tax deductible, payroll taxes may increase labor costs by 10-15 percent for a $10,000 salary and 5-7 percent for a $50,000 salary in a corporation as contrasted with the same taxable income as a sole proprietor.

Fringe benefit programs such as retirement plans, and life, health, and accident insurance also receive different tax treatment by the three types of business organizations (corporation, sole proprietorship, and partnership). Although all three business entities can qualify for tax deductible retirement plans, limitations on deductions by corporations are generally much higher than for individuals. In addition, an employee need not report as income the premiums paid by the corporation on the first $50,000 of term life insurance, and the premiums are tax deductible to the corporation. The cost of health and medical insurance benefits provided to employees are not treated as income to them, and a corporation may also deduct their cost. The deduction for the cost of these fringe benefits will be lost if the programs discriminate in favor of highly compensated employees or owner-employees. Finally, the corporation may be able to deduct expenses incurred on a farm residence if the owner-employee is required to live in the residence as a condition of employment; food expenses may also be deductible if furnished for the convenience of the employer. Deductions for such expenses are closely scrutinized by the IRS, particularly if taken on behalf of owner-employees.

Federal estate and gift tax provisions have become more important as farm estates have increased in value. While the same provisions apply to property owned under each of the three legal business entities, the corporate form of business organization may more readily facilitate property transfers, particularly where property is transferred prior to death through gifts. Furthermore, if the value of farm resources continues to increase rapidly, and the Federal credit for gift and estate taxes is not increased, a program of annual gifts of stock will result in some of the appreciation accruing to the heirs rather than being taxed in the parent's estate. Proper development of the corporate capital structure through use of a combination of various kinds of stock and debentures may make the corporation a very attractive estate and retirement planning entity.

The difference in after-tax net worth accumulation of several illustrative farms was analyzed over a 10-year period through use of a computer business planning model. These illustrative farms had beginning net worths ranging from $644,851 to $1,373,316. The 10-year tax savings of using the corporate structure compared with a sole proprietorship ranged from $68,219 to $197,250; the 10-year growth rate in projected net worth was increased by 0.63 to 0.96 percentage points with a corporation compared with a sole proprietorship. The tax savings from incorporation were smaller for the smaller farms and increased at a decreasing rate with increases in farm size.

Conservation Practices and Tax Law

The 1954 Internal Revenue Code permits certain landowners to deduct their share of the cost of soil or water conservation projects as an operating expense. These deductions are limited to 25 percent of the gross income from farming in any given year, but the balance of expenses may be carried over to future years. In 1969, a recapture provision was added which required that if land that produced a soil or water conservation deduction is sold less than 10 years from acquisition, a part or all of the gain attributable to the deduction is recaptured as ordinary income.

A 1979 study by Boggess and others at Iowa State University found that these tax provisions and other government policies taken together have a significant impact on the adoption of soil and water conservation practices. Specifically, the effectiveness of interest or capital subsidies for terraces depends in large part upon the income and marginal tax rate of the farm firm. With the low income generated by farms on the more erosive soils, terracing was not used in the absence of legal restrictions on losses, and terracing subsidy programs had little impact on acres terraced. However, when livestock was added, acres terraced increased dramatically, even without a cost or interest subsidy, because of the higher income and tax incentives that permit deducting such expenses up to a limit of 25 percent of taxable farm income. For farms on less erosive soils, where incomes were higher, terracing was included as part of the base plan, with the amount of terracing depending on the level of income and thus the potential tax savings from deducting the terracing expenses.

Collins evaluated the impact of the income tax provisions on the willingness of landowners to engage in soil and water conservation measures and the differential impacts of the tax laws on various classes of landowners.

The analysis proceeded in a case study format with capital budgeting procedures applied to numerous sets of scenarios with respect to farm and nonfarm income, the size of the soil and water conservation expenditure, and the recapture requirements. In addition to the numerical case study analyses, data were gathered from the USDA landownership survey tape and subjected to a statistical analysis to determine statistically significant differences between the social economic characteristics of landowners who had undertaken a soil or water conservation project and those who had not.

The results suggest that the option of deducting soil and water conservation expenses increases the probability that a conservation project will be undertaken. The numerical examples suggest that deductibility reduces the net annual return necessary from a conservation project for a person to adopt it, especially for higher income taxpayers. Regression analyses of those who have participated in conservation projects suggest, however, that there are other variables that are more important and that the tax provisions play a minor role in the decision to undertake a conservation project.

The existence of a substantial amount of nonfarm income appears to have little, if any, affect on the conservation decision. This argument is verified by the numerical examples as well as the statistical analysis. As to farm income, the numerical analyses and statistical tests suggest that farm income is inversely related to the probability of adopting a conservation project. The reason for this conclusion, at least using the numerical analysis, is the assumption concerning future income and tax liabilities. It was assumed that the taxpayer was unable to use additional deductions or the cash accounting system to lower his or her marginal tax rate in years following the conservation deduction. Consequently, the income generated by a conservation expenditure was taxed at high marginal tax brackets for those who had high incomes. The after-tax income from such a project was substantially lower for the high-income persons because the future benefits of the project were taxed in high marginal brackets.

If the high-income farmer has the opportunity and flexibility to lower future marginal tax brackets through the use of other deductions and/or a cash accounting system, future tax burdens would not be so high and the after-tax return would be increased. If incomes are variable, farmers would be encouraged to participate in conservation projects in years of high income (in essence as a means of income averaging) with the expectation that

future income from the project would not be taxed in as high a marginal tax bracket as the tax bracket that existed in the year of the deduction. Farmers with consistently high income might be less inclined to participate in conservation projects as frequently as those who have variable income.

The net influence of the 25-percent limitation on the amount of the deduction on participation in conservation projects is difficult to assess. Clearly, a limitation that delays the generation of the tax benefit until later years would be similar to a requirement to capitalize and depreciate the expenditure, thus increasing the net cost of the project and discouraging conservation expenditures. The key determinants of whether the 25-percent limitation encourages or discourages conservation expenditures include the size of the expenditure, the amount of farm and nonfarm income, and the size of the deduction. If the limitation did not exist, deducting the entire expense in any year may in fact lower the marginal tax bracket, thus resulting in a tax savings from the deduction that is not as large as would occur if the tax bracket was not lowered. For example, if the deduction is sufficiently large that the marginal tax bracket is reduced from 49 percent to 32 percent, the tax benefit of the last dollar of the deduction is only $0.32 rather than $0.49. In contrast, if the 25-percent limitation restricts the size of the deduction so that the tax bracket is not lowered, thus enabling the taxpayer to obtain an additional deduction in a future year at a similarly high marginal tax bracket, then the limitation may be advantageous.

Finally, as expected, farmers who intend to sell their land within the recapture period are less likely to adopt a conservation measure. Statistical analyses indicated that farmers who had engaged in a conservation measure had owned their land longer than those who did not engage in such practices. The statistical results also indicate that the farmer who engages in a conservation project tends to have a smaller farm, owns less valuable land, leases less land on a cash basis, is older, has less education, and has less income from both farm and nonfarm sources compared with those who do not participate in such projects.

Labor and Payroll Taxes

The social programs relating to maintaining family incomes in the United States grew out of the sweeping social reform legislation that reached its peak in the thirties. This legislation provided the impetus for many programs, but social security, unemployment insurance, and workers' compensation are surely among the most important. While all of the programs were designed to satisfy the requirements of an industrial labor force, each has gradually been expanded to include at least a portion of the agricultural labor force—both hired farmworkers and self-employed farm operators.

Barkley undertook to assess the impact of taxes imposed to finance these income maintenance programs on the costs of labor, capital-labor substitution, and the structure of agriculture. The results are qualitative and inferential in nature since little, if any, data is available to quantify the impacts of labor taxes on farmers and the farming sector.

Social Security

Social security is a shorthand reference to the broad program entitled Old Age, Survivors, Disability, and Health Insurance (OASDHI). This program provides retirement income to persons who meet certain complex age and program participation requirements. It also provides benefits for survivors of workers and some disability income for persons who are unable to earn labor income. The health insurance aspects are the medicare programs that were enacted in the sixties.

When the original social security laws were passed in the middle and late thirties, social security program benefits were not available to farmworkers or to self-employed farmers. The laws began to change, however, and in 1951, social security benefits became available to farmworkers who were regularly employed in agricultural jobs. In 1954, the hard-to-define regularly employed feature was dropped and some 1.8 million farmworkers came under the compulsory provisions of the social security laws. By the end of the seventies, some 2 million farmworkers earned income sufficient for them to qualify as participants in the social security system.

At the time agricultural workers were brought under social security coverage, the program was financed by a 3-percent tax on cash wages paid to the farmworker. The 3 percent was divided evenly between the employer and the employee with each contributing 1.5 percent. The payment was further restricted so that the taxes were collected only from farmworkers who earned cash wages of at least $150 per year or from those who worked for cash wages for 20 or more days for the same farm employer during the year. In either case, the tax applied to only the first $3,000 of cash wages, so the maximum payment for either farm operator or farmworker was $45 per year. The annual contribution rate has grown considerably since 1950. In 1981, employer and employee each contributed 6.65 percent of the cash wage bill and this percentage applied to all cash wages up to $29,700 per year. The $150, 20-days per year stipulation is still in effect.

It can be reasonably argued that the operator's 1.5 percent share of cash wages in 1950 was an insignificant proportion of almost any farm operator's total annual expense, and thus had little impact on farm operations. It was probably an insignificant issue in any decisions relating to the substitution of capital for labor. At present, the farm operator must pay 6.65 percent of the cash wage bill for any workers who qualify as part of the social security program. This share is, moreover, scheduled to increase in 1982 and rates are unlikely to go down in the forseeable future. This could be sufficient incentive to make conversion to more mechanized farming an attractive alternative to some, especially the larger farm operators.

Farm operators themselves came under the social security program as self-employed persons. Although there are some eligibility requirements, most commercial farmers qualify. These farm operators must now pay 9.3 percent of their incomes up to the same maximum effective for hired laborers. A farm operator who chooses to incorporate is, therefore, put in a difficult position. The self-employed status required an 8.1-percent payment; employment by one's own, closely held corporation requires 6.65 + 6.65 = 13.30 percent of wages being taken to provide social security (although the contribution by the employer—the contribution—is tax deductible). The social security program thus penalizes the operator who may wish to use incorporation as a means of streamlining other financial aspects of the farm business.

Unemployment Insurance

Unemployment insurance is perhaps the most complex of the tax/benefit programs presently in place in the United States. Unemployment insurance was designed for an industrial labor force and was not generally made available to agricultural workers. The reasons are complex but center on two major themes. First, agriculture is perceived to be a deficit industry that can never generate enough tax revenue to pay the unemployment claims of an irregular, temporary, or casual work force. Second, under strict interpretation, farm family labor would be forced to pay the tax but could never qualify for program benefits.

The unemployment insurance program itself is a unique blend of Federal and State laws. The Federal Government imposes a 3.4-percent payroll tax on covered employments, but 2.7 percent is rebated to the States to help defray the costs of the State-administered unemployment insurance program. The States levy additional payroll taxes to generate sufficient revenue to pay the claims. They also set their own eligibility and coverage rules. The result is a highly complex mixture of laws that places workers who are temporarily unemployed at a disadvantage: they do not always know the laws and the rules change whenever a State line is encountered.

The program is further complicated by experience ratings. An industry or a firm that has a record of many layoffs, high turnover, and considerable seasonality will pay a higher State payroll tax than one that is reasonably stable. These ratings vary from State to State, resulting in extreme variation in payroll tax rates paid by employers in covered employments. The rates for covered employments vary from 0.8 percent of the payroll in Texas to 4.8 percent of the payroll in Alaska. A national average rate is hard to calculate because of weighting problems between covered and excluded employments and because of the vastly different experience ratings applied to different industries.

Official publications of the U.S. Department of Labor still list agriculture as being excluded from unemployment insurance. There are, however, some exceptions. Revisions in the 1976 Federal Unemployment Tax Act provided that an agricultural employer must pay the taxes and arrange for worker participation if the following circumstances apply:

a) If the farm operator paid out $20,000 in agricultural wages in any calendar quarter in the current or preceding calendar year, or

b) If the farm operator employed 10 or more workers on 20 days in 20 different weeks.

Quite clearly, unemployment insurance in agriculture is a program that affects large farms. The few exceptions come in six States which provide more liberal laws that allow farmworkers on small farms to avail themselves of program benefits, but who then must also require that farm operators help bear the tax burden. Thirty-one States allow voluntary coverage of workers in the agricultural industry, but records on program participation are not available.

The effects of unemployment insurance are hard to conceptualize. One argument says the rates are so low as to be safely ignored. The eligibility requirements (or mandatory participation requirements) are so severe that very few farmers and very little agricultural output is presently affected. Another line of argument says that allowing small and family farms to participate in this program could bring a stabilizing influence to this portion of the agricultural industry. If workers who rely on small farms for their incomes could receive unemployment checks during slack periods and periods of involuntary unemployment, they would be more likely to wait out bad periods and return to their former farm jobs when the work season began again. This would enable the small farmer to avoid the problems and costs of rehiring, retraining, and helping new workers settle into a new job.

It is hard to know where economic logic leads in the case of unemployment insurance and its applications in agriculture. The large operator who has more institutional opportunities that can be used to help avoid payment of payroll taxes may argue to retain the programs in their present form. Small farmers may have a strong incentive to participate on an even broader scale because of the security they can offer as a prerequisite and because the marginal increase in tax burden would be nominal—most often less than 5 percent of the taxable payroll.

Workers' Compensation

Compensating workers for injuries and lost wages resulting from on-the-job accidents is almost a part of common law among western nations. However, there is no Federal program in the United States designed to cover accidents incurred while workers are on the job; the responsibility for this program has fallen to the States. The States all have workers' compensation programs, but, as before, agriculture is not always a part of the program.

The States use one or more of three general methods to provide workers' compensation insurance. Under one method, States license private insurance companies to sell compensation insurance coverage to employers of workers in covered employments. The second method is similar to the first, but uses a State-owned insurance company to underwrite compensation insurance. The third method is self-insuring—a process by which an employer knowingly assumes the risk of having to compensate any worker injured while on the job.

At this time, 21 States have special requirements relating to insurance coverage for agricultural workers who may be injured on the job. The special requirements relate to number of employees, length of employment, total payroll, and limits to liability. In 19 of the States, coverage is compulsory; in 2, coverage is elective. Twelve States make no distinction between agricultural and industrial employment. Only one of these—New Jersey—has an entirely elective program. The remaining States have no provision other than elective provision for workers' compensation insurance that reaches the agricultural worker.

Workers' compensation insurance can be very expensive. Many States that rely on private carriers allow the private company to set a very high minimum premium that must be paid regardless of

the size of the payroll. Maine is one such State; it charges $500 for the privilege of joining the program. North Carolina, on the other hand, is a low-cost State with a $198 minimum charge. The minimum premium is not the entire cost of insurance. Additional fees based on riskiness and performance ratings are also charged. These are presumably developed on an actuarial basis and range from $3.26 per $100 wages in Indiana to $26.25 per $100 wages in Alaska.

Workers' compensation is a necessary but highly variable expense. More than this, it appears to be highly regressive against farm size. In Maine, for example. a farm operator with a $1,000 payroll would pay a minimum of $503 (50.3 percent of his payroll) for compensation insurance. A farmer with a $25,000 wage bill would pay $3,048 or 12.2 percent of payroll for the same coverage. The situation is not much better in a low-cost State. In North Carolina, workers' compensation insurance adds 19.8 percent to the labor cost of the farmer who pays $1,000 in wages. The farmer who pays $25,000 in wages must add only 3.7 percent for compensation insurance.

Of all the taxes that can apply to agricultural labor, this one poses the strongest threat to the existing structure and performance of the industry. It may pay a farm operator who is operating close to a margin, to shift land use to get into one of the low-risk, and thus lower cost, categories for compensation insurance. Similarly, an operator may wish to avoid the high-risk charges associated with machines and shift to unmechanized cropping, small grains, or some selected field crops.

Chapter IV: Future Research

There is an endless variety of useful research that could be undertaken in the area of tax policy. Where research funds are scarce, priorities need to be established for the application of public funds to the most important questions.

General Considerations and Specific Studies

Much of the current discussion about tax provisions focuses on efficiency and who benefits from any efficiency gains. For example, Carman has shown that for persons who can benefit from the current expensing of capital items, the cost of capital has been lowered below the market price. The supply of these capital items then is more than it would be without this tax advantage. A greater supply of these items results in a larger supply of the goods they produce which results in a lower consumer price. But the ultimate impact on consumer and producer welfare as well as tax revenues has not been well documented. Thus, the impact of the tax system on efficiency and resource allocation should be the focus of further study.

While efficiency would be the major concern of new research, it is not the only criterion by which public policy should be judged. Further research should also consider the distributional and equity results of the income tax preferences. Even if the tax laws were found efficient, there would still be important questions on whether the tax laws should favor activity that has a particular distributional effect.

The following is a listing of several studies that could be initiated.

Taxes and Supply Response

Carman has shown how the tax law affected investment, output, and price responses for some tree and vine crops. While tree and vine crops are not a large segment of agriculture, there is little reason to believe that the working of the tax law on tree and vine crops is so different from its operation on other products as to produce significantly different consequences. Empirical work should be continued to study supply response impacts in other commodities.

Taxes and the Livestock Sector

Some kinds of livestock offer multiple advantages—the costs are deductible against ordinary income and a large part of the income produced by these ordinary deductions is reported as long-term capital gain. When properly combined with other income producing activity, these tax-favored activities can produce tax benefits that are greater than the taxes paid on income from the favored activities. Because deductions bring more tax relief than the resulting income bears in taxes, a kind of a negative income tax on these enterprises can result. The opportunity to use these provisions in various livestock enterprises should be investigated.

Dairy herds have been generally profitable in recent years, and in many States there should be a wealth of information about production from dairy herd improvement records. Also, dairy herd size seems to have grown significantly, perhaps in part because of the tax advantages. Generally speaking, the milking activity produces ordinary income whereas the sale of the offspring can produce capital gain income. Dairy herds sometimes have all the characteristics of tax sheltered investments syndicated to the public. The difference is that dairy herds frequently produce the ordinary income that is sheltered. In public syndications, the sheltered income is usually nonfarm income.

Beef breeding herds offer some of the same possibilities, but there may not be as much information available on beef cattle as on dairy operations. Also, while beef breeding herd tax losses may sometimes shelter farm income, they are often used against nonfarm income. Perhaps the ideal would be a study of both the dairy and beef breeding cattle subsectors to see if differences and similarities in supply response and adoption of technology and production practices can be related to the tax rules. Hogs may offer another good area for study. The hog industry seems to have developed in the direction of confined facilities similar to those often found in the broiler industry. A study could pose the question of the extent to which tax laws have encouraged this development.

Relative Structural Impact of Tax Laws

Tax laws have had some impact on the structure of agriculture. Research designed to evaluate and determine the relative weight of tax laws compared with other policies and economic forces would give the policymaker greater assurance about any proposed policy changes. While not all tax provisions nor industries could be dealt with, the other studies suggested could be expanded to cover this aspect.

Subsidies to Industries with Mixed Inputs

Farming requires numerous inputs. Some of them are available in relatively unlimited supply in the long run. The supply of farmland, however, while not entirely fixed, is not unlimited. In these circumstances, subsidies conferred upon the relatively unlimited inputs may be shifted to the inputs in relatively fixed supply.

If this argument has any validity, subsidies available through the tax system to specific kinds of farm assets will simply increase land prices in the long run. For example, the investment tax credit for machinery and equipment will be shifted from the specific capital item to the landowner in the form of higher returns that will be capitalized into the price of land. This theory should be investigated further.

Tax Simulators

One of the growing responsibilities of ERS staff is to evaluate the implications for agriculture and farmers of various legislative tax proposals. The capability to complete a detailed analysis of the impact of changes in tax rules for various illustrative farms with a minimum time delay would be useful in such evaluations. Generalized computer simulation models to do estate and business tax computations have been developed, and similar models are being proposed to do income tax computations. Development of a generalized income tax simulator and modification of all three tax simulators (estate, business, and income) so that they are accessible on an interactive basis would be useful in policy analysis. The tax calculators could also be interfaced with the ongoing illustrative farms work in ERS so that an up-to-date data base is used in the analysis. Such models could then be used to incorporate current tax provisions in the illustrative farms work, and to evaluate on an on-going basis the implications of various changes in income and estate tax provisions on illustrative farms and the farming sector.

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